PB90-234519

Final Response to BDAT Related Comments Document D001
Volume 1-B

(U.S.) Environmental Protection Agency, Washington, DC

May 90

U.S. Department of Commerce
National Technical Information Service
NTIS

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO.
EPA/530-SW-90-061 D

2.

3. Recipient's Accession No.
PB90 234519/AS

4. Title and Subtitle
Final Response to BDAT Related Comments
Document: D001
Volume I- B

5. Report Date
May 1990

6.

7. Author(s)
Rosengrant/Craig/OSW

8. Performing Organization Rept. No

9. Performing Organization Name and Address

U.S. EPA
Office of Solid Waste
401 M. Street SW
Washington, DC 20460

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address

13. Type of Report & Period Covered
5/90
Response to Comments

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This response to comments document only addresses those comments which were submitted on the proposed land disposal restrictions for those waste codes and general BDAT technologies and issues which relate to Third Third Wastes Treatment Standards.

The commenters presented in this document are grouped according to major concerns of the commenters.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement
RELEASE UNLIMITED

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page)
UNCLASSIFIED

21. No. of Pages
0

22. Price
0

(See ANSI-Z39.18)

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)

EPA/530-SW-90-001D

PB90-234519

FINAL
RESPONSE TO BDAT RELATED COMMENTS DOCUMENT

D001: Characteristic Ignitable Wastes

VOLUME I-B

Larry Rosengrant, Chief
Treatment Technology Section

Rhonda Craig
Project Manager

U.S. Environmental Protection Agency
Office of Solid Wastes
401 M Street S.W.
Washington, DC 20460

May 1990

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA 22161

INTRODUCTION

This response to comments document only addresses those comments which were submitted on the proposed land disposal restrictions for those waste codes and general BDAT technologies and issues which relate to Third Third Wastes Treatment Standards.

The commenters presented in this document are grouped according to major concerns of the commenters. This document is comprised of the following sections:

ISSUE CODE 1: General BDAT Aspects
ISSUE CODE 2: D001 - Characteristic Ignitable Wastes
ISSUE CODE 3: D002 - Characteristic Corrosive Wastes
ISSUE CODE 4: D003 - Characteristic Reactive Wastes and P and U Wastes Containing Reactive Listing Constituents
ISSUE CODE 5: D004/D010 - Characteristic Wastes for Arsenic and Selenium and K, P, and U Wastes Containing Arsenic and Selenium
ISSUE CODE 6: D005 - Characteristic Wastes for Barium and P013
ISSUE CODE 7: D006 - Characteristic Wastes for Cadmium
ISSUE CODE 8: D007 - Characteristic Wastes for Chromium
ISSUE CODE 9: D008 - Characteristic Wastes for Lead P and U Wastes Containing Lead
ISSUE CODE 10: D009 - Characteristic Wastes for Mercury P and U Wastes Containing Mercury
ISSUE CODE 11: K044, K045, K047: Wastes from the Manufacturing and Processing of Explosives
ISSUE CODE 12: D011 - Characteristic Wastes for Silver
ISSUE CODE 13: P119, P120 - Vanadium Containing Wastes
ISSUE CODE 14: P and U Wastes Containing Thallium
ISSUE CODE 15: Mixed Radioactive Hazardous Wastes
ISSUE CODE 16: Polynuclear Aromatic U Wastes
ISSUE CODE 17: Halogenated Aliphatic U Wastes
ISSUE CODE 18: Non-halogenated Aromatic U Wastes
ISSUE CODE 19: F002-F005 - Solvents
ISSUE CODE 20: F006 - Electroplating WW Treatment Sludges
ISSUE CODE 21: F019 - Aluminum Conversion Coating Treatment Sludges
ISSUE CODE 22: F025 - Wastes from Production of Chlorinated Aliphatics
ISSUE CODE 23: K002-K008 - Inorganic Pigments

ISSUE CODE 24: K011/K013/K014 - Acrylonitrile

ISSUE CODE 25: K015 - Still Bottoms from Benzal Chloride

ISSUE CODE 26: K021 - Spent Antimony Catalyst.

(No Comments Were Received for this Waste Code)

ISSUE CODE 27: K046 - WW Treatment Sludges from Manufacturing, Formulating, and Loading of Lead-Based Initiating Compounds

ISSUE CODE 28: K060 - Ammonia Still Lime Sludge.

(No Comments Were Received for this Waste Code)

ISSUE CODE 29: K061 - Electric Arc Furnace Dust

ISSUE CODE 30: K069 - Emission Control Dust/Sludge from Secondary Lead Smelting

ISSUE CODE 31: K071, K106 - Mercury Cell Process Wastes

ISSUE CODE 32: K073 - Chlorinated Hydrocarbon Wastes.

(No Comments Were Received for this Waste Code)

ISSUE CODE 33: K086 - Residues from Ink Formulation

ISSUE CODE 34: K100 - Waste Leaching Solution from Acid Leaching of Emission Control Dust/Sludge from Secondary Lead Smelting

(No Comments Were Received for this Waste Code)

ISSUE CODE 35: Wastes Containing Cyanide

ISSUE CODE 36: K017 - Wastes from the production of Epichlorohydrin

(No Comments Were Received for this Waste Code)

ISSUE CODE 37: K028,K029, K095, K096 - Production of 1,1,1-Trichloroethane

ISSUE CODE 38: Wastewaters containing BDAT Constituents

ISSUE CODE 39: K022 - Wastes from the Production of Phenol/Acetone

ISSUE CODE 40: K025 - Distillation Bottoms from the Production of Nitrobenzene

ISSUE CODE 41: K035 - WW Treatment Sludges from the Production of Creosote

ISSUE CODE 42: K026 - Stripping Still Tails from the Production of Methyl Ethyl Pyridine

(No Comments Were Received for this Waste Code)

ISSUE CODE 43: K083 - Distillation Bottoms from the Production of Aniline

ISSUE CODE 44: Oxygenated Hydrocarbons and Heterocyclic U and P Wastes

ISSUE CODE 45: F024 - Production of Chlorinated Aliphatic Hydrocarbons

ISSUE CODE 46: Halogenated Organic, Pharmaceutical, Brominated Organic, Organo-Sulfur Compound, and Organo-Nitrogen Compound Wastes
ISSUE CODE 47: Halogenated Pesticide and Chlorobenzene, Halogenated Phenolic, and Phenolic Wastes
ISSUE CODE 48: K048-K052 - Petroleum Refining Industry Wastes
ISSUE CODE 49: K036 - Organophosphorous Wastes (Nonwastewaters)
(No Comments Were Received for this Waste Code)
ISSUE CODE 50: K037
(No Comments Were Received for this Waste Code)
ISSUE CODE 51: Leachates
ISSUE CODE 52: Gases

Commenters are identified by both commenter number and commenter name. Comments within each section of this document have been assigned a sequential comment number.

Issues were obtained from the original comment submittal and were categorized based on the grouping specified above. The Agency's response to each comment follows immediately after the text of the document. For responses related to capacity issues, the reader should review the "Response to Comments Background Document for the Third Third Land Disposal Restrictions Proposed Rule, November 22, 1989. Volume II Capacity Related Comments." For information regarding broad policy questions, the reader is directed to the "Response to Comments Background Document for the Third Third Land Disposal Restrictions Proposed Rule, November 22, 1989. Volume III Policy Related Comments."

TABLE OF CONTENTS

VOLUME I-A

ISSUE CODE 1: General BDAT Aspects

A. Request for Data
B. Handling of Data
C. Availability of Technology
D. PQLs
E. Wastewaters/Nonwastewaters
F. Grab/Composite Samples
G. Quantification Complications for P and U Wastes
H. Soil and Debris
I. Stabilization
J. Recovery/Recycling Technologies
K. Treatment Standards for Treatability Groups
L. Ammonia Wastes
M. Technology as Treatment Standard
N. Treatment of Residues
O. TCLP vs. EP
P. Analytical Concerns
Q. Treatment Standards for Characteristic Wastes
R. No Land Disposal
S. Wastes with Multiple Characteristics
T. Incineration/Fuel Substitution
U. Transfer of Treatment Standards or Performance Data
V. Definition of K112
W. Treatment Standards for P and U Wastes
X. Treatment Technologies for Metals
Y. Statistical Analysis

4

VOLUME I-B

ISSUE CODE 2: D001 - Characteristic Ignitable Wastes

Contents:

A. Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
B. Other Issues Concerning Treatment Standards for the Ignitable Liquids Subcategory
C. Treatment Standard for Ignitable Compressed Gases
D. Issues Concerning Deactivation Treatment Standards
E. Definitions of Subcategories
F. Dilution

VOLUME I-C

ISSUE CODE 3: D002 - Characteristic Corrosive Wastes

A. Proposed pH Requirement
B. Proposed Insoluble Salt Requirements
C. Incineration
D. Dilution
E. Miscellaneous Issues

VOLUME I-D

ISSUE CODE 4: D003 - Characteristic Reactive Wastes and P and U Wastes Containing Reactive Listing Constituents

A. Deactivation Technology Alternatives
B. Cyanide Treatment Standards
C. Other Cyanide Issues
D. Sulfide Treatment Alternatives
E. Proposed Insoluble Salt Requirement for Sulfides
F. Reactive Sulfide Definition
G. Explosive, Water Reactive, and other Reactive Wastes
H. P and U Waste Issues

#5

VOLUME I-E

ISSUE CODE 5:D004/D010 - Characteristic Wastes and K, P, and U Wastes Containing Arsenic/Selenium

A.-. Aqueous Wastes are Incompatible with Vitrification

B.-.Air Emissions

C.-. Scrubbers to Control Emissions from Incinerators

D.-. Chemical Oxidation and Stabilization as BDAT in lieu of Vitrification

E.-. Treatment of Organoarsenic bu Incineration in lieu of Vitrification

F.-. Furnaces Permitting

H.-. Vitrification Residues

I.-. Chemical Treatment as BDAT for Arsenic

J.-. Alternative Technologies to Vitrification

K.-. Vitrification is not Demonstrated

L.-. Vitrification Technology is not Available

M.-. Stabilization as BDAT for Arsenic

N.-. Stabilization Unsatisfactory

O.-. Vitrification Data Supplied

P.-. Vitrification Supported as BDAT for As/Se

Q.-. TCLP with Glasses Can Give Misleading Results

R.-. BDAT is Technically Flawed

S.-. Stabilization as BDAT for As/Se

T.-. Not Treatable, non-defined Se Waste

U.-.Standard Inconsistency

V.-. Hexafluoroarsenate

X.-. Levels at/Above/Below Characteristic EP Level

Y.-. Permitting Vitrification Devices

Z.-. Specification of Treatment Standards

AA.-. Segregation of Arsenic Wastes in Landfills

BB.-. Hexafluoroarsenate

CC.-. Waste Treatment Levels

EE.-. Solubilities

FF.-. Standards Deficiencies

GG.-. Data

HH.-. Chemical Fixation

IL.-. Inconsistent Standards

VOLUME I-F

ISSUE CODE 6:D005 - Characteristic Wastes for Barium and P013

A.-. Data Submission
B.-. Treatment Standards
C.-. Preamble vs. Proposed Rule
D.-. MCLG Standard
E.-. Treatability Group for Barium Wastes Containing Organics
F.-. Drinking Water Levels of Barium

ISSUE CODE 7:D006 - Characteristic Wastes for Cadmium

A.-. Problems in Management of Household Battery Wastes
B.-. Cadmium Wastes not Similar to F006 or K061
C.-. Set Standards at EP Level
D.-. Set Treatment Method Instead of Level
H.-. Foundry Wastes Cannot Meet Standards
I.-. Inconsistencies in Setting Standards
K.-. Allowance of Alternate Technologies
L.-. Stepwise Recovery of More than One Constituent may Require Processing at More than One Site
M.-. Most Batteries are not Hazardous Wastes
N.-. Data Submittal

VOLUME I-G

ISSUE CODE 8:D007 - Characteristic Wastes for Chromium

A.-. Treatment Standards
B.-. Treatment Data
C.-. Treatability of Waste/Group
D.-. Total Chromium vs Hexavalent or Trivalent Chromium
E.-. Miscellaneous
F.-. Comments on Data

VOLUME I-H

ISSUE CODE 9:D008 - Characteristic Wastes for Lead P and U Wastes Containing Lead

A.-. Characteristic Level as Treatment Technology
B.-. Wastewaters Treatment Data
C.-. Wastewaters - Validity of Transfers from K062
D.-. Specific Use of Chemical Precipitation
E.-. Treatment Data for Nonwastewaters
F.-. Validity of Transfer of Stabilization Data to D008
G.-. Stabilization as an Effective Treatment Technology for Lead Wastes
H.-. Application of Recovery to D008 High Level Nonwastewaters
I.-. Proposed Cutoff Level for Recovery
J.-. Lead Acid Batteries-Further Specification of "Metal Recovery"

VOLUME I-I

ISSUE CODE 10: D009 - Characteristic Wastes for Mercury P and U Wastes Containing Mercury

A.-.Data Submission Only
B.-.Thermal Recovery Standard; Demonstrability
C.-.Establishment of BDAT Standard at Level Below the Characteristic Level
D.-.Stabilization as BDAT or Sulfide Precipitated D009 as BDAT
E.-.Alternative Treatment for "Debris" and Other Wastes
F.-.Reconsideration of the Retort Cutoff Level
G.-.Treatment Standard for Mixed Waste
H.-.Indigenous Waste

ISSUE CODE 11: K044, K045, K047 - Wastes from the Manufacturing and Processing of Explosives

A. Treatment Standard

VOLUME I-I

ISSUE CODE 12:D011 - Characteristic Wastes for Silver

A.-. Treatment Standards
B.-. Precipitation
C.-. Concentration-based Standards vs. Recovery or Stabilization

ISSUE CODE 13: P119, P120 - Vanadium Containing Wastes

A.-. Treatment Technology
B.-. Waste Classification
C.-. Treatment Standards
D.-. Data Submission

ISSUE CODE 14: P and U Wastes Containing Thallium

A.-. Data Submission

VOLUME I-J

ISSUE CODE 15: Mixed Radioactive Hazardous Wastes

A. Radioactive Lead Wastes
B. Radioactive Mercury Wastes
C. Radioactive Zirconium Fines
D. Other Radioactive Wastes

ISSUE CODE 16: Polynuclear Aromatic U Wastes

A. Treatment Standards
B. Recycling/Reuse

ISSUE CODE 17: Halogenated Aliphatic U Wastes

A. Treatment Standards
B. BDAT

VOLUME I-J

ISSUE CODE 18: Non-halogenated Aromatic U Wastes

A. Treatment Standards
B. Recycling/Reuse

ISSUE CODE 19: F002-F005 - Solvents

A.-. Method of Detection
B.-. Biological Treatment
C.-. Treatment Standard
D.-. 2-nitropropane Standard
E.-. Definition of Wastewater and Solvent Mixtures

ISSUE CODE 20: F006 - Electroplating Wastewater Treatment Sludges

A.-. Wastewater Definition
B.-. Treatment Standard
C.-. F006 Subcategory
D.-. Analytical Methods

ISSUE CODE 21: F019 - Aluminum Conversion Coating Treatment Sludges

A.-. Analytical Methodology
B.-. BDAT
C.-. Treatment Standards

VOLUME I-K

ISSUE CODE 22: F025 - Wastes from Production of Chlorinated Aliphatics

A. Treatment Standard

ISSUE CODE 23: K002-K008 - Inorganic Pigments

A.-. Support Standard
B.-. Background Document Corrections
C.-. Sampling Frequency

ISSUE CODE 24: K011/K013/K014 - Acrylonitrile

A.-. Wastewater Definition
B.-. Acrylonitrile Standard
C.-. Performance Data
D.-. Numerical Standard vs. Wet Air Oxidation Method
E.-. Data Request

ISSUE CODE 25: K015 - Still Bottoms from Benzal Chloride

A.-. Nickel Standard
B.-. Organic Standards

ISSUE CODE 26: K021 - Spent Antimony Catalyst

No Comments Were Received for this Waste Code

ISSUE CODE 27: K046 - WW Treatment Sludges from Manufacturing, Formulating, and Loading of Lead-Based Initiating Compounds

A. Treatment Standard
B. Stabilization Technology
C. Deactivation Technology
D. Waste Minimization
E. Analytical Data

VOLUME I-K

ISSUE CODE 28: K060 - Ammonia Still Lime Sludge

No Comments Were Received for this Waste Code

ISSUE CODE 29: K061 - Electric Arc Furnace Dust

A.-. Wastewater Treatment Standard
B.-. High Temperature Metals Recovery and Residuals
C.-. Treatment Technologies for Nonwastewaters
D.-. Availability of High Temperature Metals Recovery

ISSUE CODE 30: K069 - Emission Control Dust/Sludge from Secondary Lead Smelting

A. Treatment Standard

VOLUME I-L

ISSUE CODE 31: K071, K106 - Mercury Cell Process Wastes

A. -. Data Submission Only
B.-. Thermal Recovery Standard: Demonstrability
C.-. Treatment Standard for K071 and K106 Wastewater
D.-. Multimedia Impacts
E.-. Stabilization as BDAT Option
F.-. Retain Existing BDAT Standard for K071 Nonwastewater
G.-. Reconsideration of Retort Cutoff Level
H.-. Indigenous Waste

ISSUE CODE 32: K073 - Chlorinated Hydrocarbon Wastes

No Comments Were Received for this Waste Code

VOLUME I-L

ISSUE CODE 33: K086 - Residues from Ink Production

A.-. Treatment Standards
B.-. Subcategories
C.-. Total Chromium vs Hexavalent Chromium
D.-. Mixture and Derived-from Rule
E.-.Soft Hammer

ISSUE CODE 34: K100 - Waste Leaching Solution from Acid Leaching of Emission Control Dust/Sludge from Secondary Lead Smelting

No Comments Were Received for this Issue

ISSUE CODE 35: Wastes Containing Cyanide

A.-. Analytical Methodology
B.-. BDAT
C.-. Treatment Standards
D.-. Soil/Debris

VOLUME I-M

ISSUE CODE 36: K017 - Wastes from the production of Epichlorohydrin

No Comments Were Received for this Waste Code

ISSUE CODE 37: K028,K029, K095, K096 - Production of 1,1,1-Trichloroethane

A.-. Nickel Standard

VOLUME I-M

ISSUE CODE 38: Wastewaters containing BDAT Constituents

A.-. U and P Wastewater Standards
  i. Wastewater Standards Below the de Minimis Levels
  ii. Use of MSL Wastewater Standards for U, P, F, K Wastewater Standards
  iii. Biotreatment Data as BDAT for Wastewater Standards

B.-. Wastewaters Containing BDAT List Constituents Document
  i. Data Screening
  ii. Demonstrated Technologies
  iii. Database Hierarchy
  iv. Variability Factors
  v. ITD Effluent Limits

ISSUE CODE 39: K022 - Wastes from the Production of Phenol/Acetone

A.-. Treatment Standards
  i. Organics
  ii. Metals

B.-. Use of Scrubber Water Data to Establish Wastewater Treatment Standards

ISSUE CODE 40: K025 - Distillation Bottoms from the Production of Nitrobenzene

A.-. Treatment Standards for Metals

B.-. Use of Scrubber Water Data to Establish Wastewater Treatment Standards

VOLUME I-M

ISSUE CODE 41: K035 - WW Treatment Sludges from the Production of Creosote

A.-. Use of Scrubber Water Data to Establish Wastewater Treatment Standards

ISSUE CODE 42: K026 - Stripping Still Tails from the Production of Methyl Ethyl Pyridine

No Comments Were Received for this Waste Code

ISSUE CODE 43: K083 - Distillation Bottoms from the Production of Aniline

A.-. Use of Scrubber Water Data to Establish Wastewater Treatment Standards

ISSUE CODE 44: Oxygenated Hydrocarbons and Heterocyclic U and P Wastes

A.-. Oxygenateds
    i. Carbon Adsorption Requirements for U147 (Maleic Anhydride)
    ii. Support a Numerical Standard for U147 (Maleic Anhydride)
    iii. Support a Numerical Standard for U154 (Methanol)
    iv. Caustic Treatment as Alternative BDAT for P003 (Acrolein)
    v. Oppose Nonwastewater Standard for U002 (Acetone)
    vi. Fuel Substitution as BDAT for Oxygenated Hydrocarbon and Heterocyclic Wastes

VOLUME I-M

ISSUE CODE 45: F024 - Production of Chlorinated Aliphatic Hydrocarbons

A. Treatment Standard
    i Dioxins and Furans
        a. Treatment Firms Refusal to Accept F024
        b. Surrogate Constituents for Dioxins and Furans
    ii Metals
    iii Organics
B. BDAT for Nonwastewater Organics
C. Listing Definitions for F024
    i Wastewaters
    ii Revised Listing Definitions

VOLUME I-N

ISSUE CODE 46: Halogenated Organic, Pharmaceutical, Brominated Organic, Organo-Sulfur Compound, and Organo-Nitrogen Compound Wastes

A.-. Halogenated Aliphatics
    i. Wastewater Standards at Drinking Water Levels
B.-. Organonitrogen Compounds
    i. P063 (Hydrocyanic Acid) or Cyanide as Surrogate for P069 (Methylacetonitrile)
    ii. Standards and Capacity for U007 (Acrylamide)
    iii. Wastewater and Nonwastewater Standards Based on Incinerator Ash and Scrubber Water Arbitrary
    iv. Lack of Incineration Capacity for U105 (2,4-Dinitrotoluene) and U106 (2,6-Dinitrotoluene)
    v. Operational Requirements on Hazardous Waste Incinerators
    vi. Data Submittal for NO_x Emissions
C.-. Brominated Compounds
    i. Brominated Organic Wastewaters are Too Low
    ii. Brominated Feed Quantities to Incinerator
    iii. Operational Requirements on Hazardous Waste Incinerators

VOLUME I-N

ISSUE CODE 46: Halogenated Organic, Pharmaceutical, Brominated Organic, Organo-Sulfur Compound, and Organo-Nitrogen Compound Wastes

(Continuation)

D.-. Treatment Methods as Treatment Standards
  i. Use of Indicator Parameters to Evaluate Effectiveness of Treatment
  ii. Oppose Use of Indicator/Surrogate Parameters for Phenolic Wastes
  iii. Linkage of Carbon Adsorption to Oxidation is Too Restrictive
  iv. Biological Treatment Should be Specified as a BDAT Option
E.-. Thermal Treatment/Fuel Substitution
  i. Supports Fuel Substitution as an Alternative BDAT Treatment Method
  ii. Recycling in Cement Kilns as Alternative to Incineration
  iii. Corrective Action Operations
F.-. PQL/Analytical Issues
  i. BDAT Standards Below PQLs
  ii. PQL, MDL Definition
  iii. SW-846 Analytical Methods
  iv. Determination of MDLs
  v. Matrix-Dependent Correction Factors
  vi. EPA Modification of Matrix Factors, Detection Limits, and Procedures
    vii. Data Reliability from EPA Contracts Labs
  viii. BDAT Generic QAPP
  ix. EPA's Use of Non-SW-846 Analytical Methods
  x. Variance Procedure When Compliance Cannot be Measured with Available Analytical Methods
G.-. Miscellaneous Halogenateds
  i. Analytical Methods for U062 (Diallate)
  ii. Analytical Methods for P028 (Benzyl Chloride)
  iii. Nonwastewater Standard for U043 (Vinyl Chloride)
  iv. Rotary Kiln Incineration as BDAT versus Other Types of Incinerators
  v. Linkage of Carbon Adsorption to Oxidation is Too Restrictive
  vi. Biological Treatment Should be Specified as a BDAT Option

VOLUME I-N

ISSUE CODE 46: Halogenated Organic, Pharmaceutical, Brominated Organic, Organo-Sulfur Compound, and Organo-Nitrogen Compound Wastes

(Continuation)

- vii. Opposes Regulation of U075 (Dichlorodifluoromethane) and U121 (Trichlorofluoromethane)
- viii. Supports Fuel Substitution as an Alternative BDAT Treatment Method

H.-. Organosulfur Compounds

- i. Wastewater and Nonwastewater Standards Based on Incinerator Ash and Scrubber Water are Arbitrary
- ii. Operational Requirements on Hazardous Waste Incinerators
- iii. Data Submittal for Chlorine Dioxide Treatment of Organosulfur Compounds

ISSUE CODE 47: Halogenated Pesticide and Chlorobenzene, Halogenated Phenolic, and Phenolic Wastes

A.-.Phenolics

- i. Direct Reuse as BDAT Option for Liquid U052 (Cresol) and U188 (Phenol)

B.-.K085

- i. Treatment Standards for PCBs

VOLUME I-O

ISSUE CODE 48: K048-K052 - Petroleum Refining Industry Wastes

A.-. Basis for BDAT Selection

- i. Solvent Extraction
  - a. BP America's Solvent Extraction Unit
  - b. CF System's Solvent Extraction Unit
  - c. Resources Conservation Company's Solvent Extraction Unit
  - d. General Solvent Extraction Comments

VOLUME I-O

ISSUE CODE 48: K048-K052 - Petroleum Refining Industry Wastes (Continuation)

- ii. Incineration and Solvent Extraction
- iii. Consideration of Cross Media Effects
- iv. Commercially Available Technologies

B.-. BDAT Treatment Standards
- i. Nonwastewater
  - a. Xylenes and Naphthalene
  - b. Benzo(a)pyrene
  - c. Ethylbenzene and Phenanthrene
  - d. Nickel and Chromium
  - e. General
- ii. Wastewater
  - a. Cyanide
  - b. General

C.-. Variability of Wastes Used to Establish BDAT Treatment Standards

D.-. Treatment Data
- i. Treatment Data Received During the Comment Period
- ii. Other Treatment Data Received
- iii. Requests for Treatment Data
- iv. Request for Agency Evaluation of the Treatment Data Submitted

E.-. General Regulatory Comments

ISSUE CODE 49: K036 - Organophosphorous Wastes (Nonwastewaters)

No Comments Were Received for this Waste Code

ISSUE CODE 50: K037

No Comments Were Received for this Waste Code

VOLUME I-P

ISSUE CODE 51: Leachates

A.-. Options
    i. Support a Separate Waste Code
    ii. Support a Separate Treatment Standard - Option 2
    iii. Support Waste Code Carry Through - Option 1
    iv. Support Promulgation of Both Options
B.-. Definition
    i. More than one Waste Code
    ii. More than one Treatability Group
C.-. Dioxin
    i. Support EPA's Proposed Approach
    ii. Postpone Dioxin Standards
D.-. Analysis and Monitoring
    i. EPA's Proposed Approach
    ii. Indicator Parameters
    iii. BDAT List as Surrogate List for Unanalyzable Constituents
E.-. Standards
    i. Standards Based on Industry Data
    ii. BDAT List Constituents
    iii. TSD-Specific Multisource Leachate Standards
    iv. Leachate Treatment Standards Based on Treatability Group
    v. Multisource Leachate Regulated as a Characteristic Waste
    vi. Multisource Leachate Standards Based on Technologies
    vii. Multisource Leachate Wastewater Standards Should Not Be Based on Scrubber Water Data
    viii. Should Not Specify a Method of Treatment for Multisource Leachate
    ix. Nonwastewater Standards Should Not Be Based on Incineration
    x. Use of WAO/Pact System Data for Multisource Leachate Standards
    xi. Higher Standard for Nickel
F.-. Permitting
    i. Promulgate Under HSWA as a Minor Permit Modification
    ii. Oppose Requirement to Reopen Hazardous Waste Disposal Permits

VOLUME I-P

ISSUE CODE 51: Leachates
(Continuation)

G.-. Other
  i. Allow Combination of Leachates to Facilitate Treatment
  ii. Supplemental Notice
  iii. Characterization of Wastes Placed in Pre-RCRA Units
  iv. Clarification of "Contaminated with" Regarding Multisource Leachate and Groundwater
  v. Use of Effluent Guidelines Database
  vi. Delay in Multisource Leachate Rule
  vii. De Minimus Exemptions
  viii. BDAT vs.BAT Effluent Guidelines

VOLUME I-Q

ISSUE CODE 52: U and P Gaseous Wastes

A.-. Thermal and Caustic Solution Destruction as Alternatives to Gas Cylinder Recovery
B.-. Numerical Standards for Gas Wastes in Nongaseous Forms
C.-. Treatment Methods for U115 (Ethylene Oxide)
D.-. Treatment Methods for U115 (Ethylene Oxide) Nonwastewaters

VOLUME I-B

ISSUE CODE 2: D001 - Characteristic Ignitable Wastes

A. Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
B. Other Issues Concerning Treatment Standards for the Ignitable Liquids Subcategory
C. Treatment Standard for Ignitable Compressed Gases
D. Issues Concerning Deactivation Treatment Standards
E. Definitions of Subcategories
F. Dilution

COMMENT NUMBER: 2-A-1

DOCKET NUMBER: LD12-00113

COMMENTER: MICHIGAN DISPOSAL INC

ISSUE: D001- Characteristic Ignitable Wastes

SUBISSUE: Treatment Issues Concerning Aqueous Waste in the Ignitable Liquids Subcategory

COMMENT:

D001 - IGNITABLE WASTE

EPA proposes incineration, fuel blending and recovery as the three mandatory processes for treatment of such wastes by 1992. Michigan Disposal Inc. has demonstrated that the use of cement kiln dust and in some cases the addition of specific treatment reagents will elevate the flash point from @90 F. to >140 F.. The corresponding volume increase does not indicate that impermissible dilution has occurred. (Final volume < 150% original volume.)

In this treatment process cement kiln dust and water result in the formation of hydrated molecules which, even when dried, will hold some water. For wastes containing water-miscible solvents, the release of volatile organics is minimized while the flash point is raised dramatically.

Michigan Disposal Incorporated recommends that waste analysis plans for such TSDF's require bench test screening of wastes to be treated by this method at the disposal facility prior to receipt of the waste. Quality control guidelines which balance the increase in waste volume against effectiveness of treatment should be adhered to closely.

There are large volumes of wastes with high water content and hazardous flash point (ie. 90 F.<fp<140 F.) which are low BTU wastes not amenable to combustion processes. Generators of these should be afforded options which reduce the hazardous properties by effective treatment. Systems which employ stabilization will play an important role in providing adequate capacity for treatment of these wastes. Therefore, Michigan Disposal endorses the Agency's regulation of these wastes such that treated wastes no longer exhibit the hazardous characteristic (fp >140 F.) instead of specification of treatment methods.

COMMENT NUMBER: 2-A-1
DOCKET NUMBER: LD12-00113
COMMENTER: Michigan Disposal Inc.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-1 (continued)
DOCKET NUMBER: LD12-00113
COMMENTER: Michigan Disposal Inc.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. Stabilization may also be used.

COMMENT NUMBER: 2-A-Z
DOCKET NUMBER: LD12-00094
COMMENTER: Tricil
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues concerning Aqueous Wastes in the Ignitable Liquids Subcategory
COMMENT:

8. D001 BDAT standard should not specify only incineration, fuel substitution or recovery as methods of treatment.

In its "third-third" proposal U.S. EPA specifies the use of incineration, fuel substitution or recovery as the method of treatment. TESI believes that U.S. EPA should set the BDAT limit for all characteristic wastes at the characteristic level. Regardless, TESI is also concerned about U.S. EPA specifying particular treatment technologies for D001 waste and believe U.S. EPA's logic and information bases are in error. TESI is currently investigating the use of a biodegradation treatment system, which, contrary to U.S. EPA's contention, does not involve dilution or air pollution. The treatment process involves the biodegradation of D001 wastes containing up to 8% organics. These materials which contain small amounts of organics are normally low in BTU value and thus are not good candidates for fuel substitution or recovery. In addition, while they can be incinerated, the cost of incineration is high as auxiliary fuels must be used to maintain combustion. The process TESI is investigating involves adsorption of the material onto activated carbon under an anaerobic condition. Microbial action is then used to destroy the organics adsorbed. Following this step, in which the organic concentration is reduced to the 1%-2% level, the carbon is subjected to aerobic conditions under which the organic concentration is reduced to "incineration like" levels. In its proposal, U.S. EPA states that significant amounts of VOCs can be released during aeration. TESI does not believe that the process it has described results in the release of significant amounts of VOC.

Regardless, TESI does not believe that U.S. EPA's concern should result in the elimination of technology choices. If U.S. EPA is concerned about VOC emissions during aeration then U.S. EPA should develop limits.

COMMENT NUMBER: 2-A-2
DOCKET NUMBER: LD12-00094
COMMENTER: TRICIL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

In some cases, EPA has determined that treatment below the characteristic level is justifiable. The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-2 (continued)
DOCKET NUMBER: LD12-00094
COMMENTER: TRICIL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. EPA believes that the commenter's treatment system is appropriate for removing the characteristic of ignitability for wastes in these subcategories and that the air emission concerns are controlled, if treatment is performed under anaerobic conditions. The Agency agrees with the commenter that EPA's concerns for air emissions are best controlled by developing limitations and, hence may do so in the future.

COMMENT NUMBER: 2-A-3

DOCKET NUMBER: LD12-00130

COMMENTER: WAYNE DISPOSAL INC.

ISSUE:
D001-Characteristic Ignitable Wastes

SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

COMMENT:

D001 - IGNITABLE WASTE

EPA proposes incineration, fuel blending and recovery as the three mandatory processes for treatment of such wastes by 1992. Michigan Disposal Inc. has demonstrated that the use of cement kiln dust and in some cases the addition of specific treatment reagents will elevate the flash point from @90 F. to >140 F.. The corresponding volume increase does not indicate that impermissible dilution has occurred. (Final volume < 150% original volume.)

In this treatment process cement kiln dust and water result in the formation of hydrated molecules which, even when dried, will hold some water. For wastes containing water-miscible solvents, the release of volatile organics is minimized while the flash point is raised dramatically.

Michigan Disposal Incorporated recommends that waste analysis plans for such TSDF's require bench test screening of wastes to be treated by this method at the disposal facility prior to receipt of the waste. Quality control guidelines which balance the increase in waste volume against effectiveness of treatment should be adhered to closely.

There are large volumes of wastes with high water content and hazardous flash point (ie. 90 F.<fp<140 F.) which are low BTU wastes not amenable to combustion processes. Generators of these should be afforded options which reduce the hazardous properties by effective treatment. Systems which employ stabilization will play an important role in providing adequate capacity for treatment of these wastes. Therefore, Michigan Disposal endorses the Agency's regulation of these wastes such that treated wastes no longer exhibit the hazardous characteristic (fp >140 F.) instead of specification of treatment methods.

COMMENT NUMBER: 2-A-3
DOCKET NUMBER: LD12-00130
COMMENTER: WAYNE DISPOSAL INC.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

EPA disagrees with the commenter that stabilization using cement kiln dust is an appropriate technology for treatment of ignitable liquid wastes. These wastes exhibit the characteristic of ignitability because of the volatile organic constituents present in the wastes. The Agency believes that technologies that destroy or recover the volatile organics are applicable treatments for removing the characteristic of ignitability.

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated. There is no evidence in this record that such high TOC streams are sent to biological treatment, nor that they are amenable to such treatment.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA

COMMENT NUMBER: 2-A-3 (continued)
DOCKET NUMBER: LD12-00130
COMMENTER: WAYNE DISPOSAL INC.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-A-4
Docket Number: LD12-00129
Commenter: Olin Chemicals
Issue: D001-Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
Comment:

Ignitable Liquids Subcategory (III.A.4.b.(1))

Olin believes that any wastewater that exhibits the characteristic of ignitability will probably be contaminated with volatile organics and aromatics. Normally, wastewater streams are of such significant volume that on-site treatment is required. This wastewater is usually amenable to various treatment schemes including those currently specified in the proposed BDAT. Another alternative would be treatment by Carbon Adsorption. Olin requests that the BDAT Treatment Standards for D001 Ignitable Liquids also include Carbon Adsorption for the wastewater form of the waste.

COMMENT NUMBER: 2-A-4
DOCKET NUMBER: LD12-00129
COMMENTER: OLIN CHEMICALS
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-4 (continued)
DOCKET NUMBER: LD12-00129
COMMENTER: OLIN CHEMICALS
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. EPA believes that carbon adsorption can remove the characteristic of ignitability for some wastes in these ignitable liquid subcategories. See 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-A-5
Docket Number: LD12-00116
Commenter: Monsanto
Issue: D001-Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
Comment:

As examples of Monsanto wastewater streams that will be impacted by EPA's proposals, we offer the following:

1. Two small purge streams of unreacted alcohols and acetone, D001 "non-wastewaters" (> 1% TOC) as generated, are successfully biologically treated in a series of wastewater treatment tanks prior to discharge under NPDES permit. The non-hazardous "non-wastewater" sludges deriving from the treatment are subsequently land disposed. The streams are small, totalling an average of 70 gallons per day, and are aggregated with 500 gallons per minute of other non-hazardous aqueous wastes prior to treatment. They are no longer hazardous after aggregation. The constituents in the purge streams are quite amenable to biological treatment.

2. A 30 gpm non-wastewater (> 1% TOC) stream is sometimes D001 ignitable. After aggregation with other wastewaters, including waters from other processes totalling 600-700 gpm, it is no longer D001 hazardous, and is processed through an equalization/settling lagoon before deepwell injection.

COMMENT NUMBER:	2-A-5
DOCKET NUMBER:	LD12-00116
COMMENTER:	MONSANTO
ISSUE:	D001-Characteristic Ignitable Wastes
SUBISSUE:	Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

The Agency believes that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents.

COMMENT NUMBER: 2-A-5 (continued)
DOCKET NUMBER: LD12-00116
COMMENTER: MONSANTO
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Such commingling does not constitute impermissible dilution. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-A-6
Docket Number: LD12-00.179.
Commenter: Dow Chemical
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment issues concerning Aqueous wastes in the
Comment: Ignitable Liquids subcategory

A waste stream containing 1.5 percent TOC which is hazardous due to ignitability would be considered a nonwastewater stream even though it is currently handled as wastewater and is treated in a wastewater treatment unit. Under EPA's current proposal, this stream would have to be incinerated rather than biotreated, even though at the headworks of the biological treatment facility, the stream is no longer hazardous after aggregation for treatment. Still, any sludge generated in that treatment would have to meet the treatment standard for nonwastewater and be incinerated whether it also exhibits the characteristic of ignitability or not. Otherwise, impermissible dilution and impermissible switching between treatability groups would have taken place. Yet the biological treatment facility was designed to treat this waste stream and has been effectively treating it for years.

The artificially contrived definition of wastewater plus the specification of a technology for treatment which does not allow for biological treatment ignores the efficient and environmentally sound systems which have been set up through the years for compliance with the Clean Water Act. Wastes which are not hazardous at the headworks to a treatment facility should not be subject to further regulation under Subtitle C.

Comment Number: 2-A-6 continued
Docket Number: LD12-00179
Commenter: Dow Chemical
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the Ignitable liquids Subcategory
Comment:

XXIV. EPA HAS SPECIFIED A TREATMENT TECHNOLOGY OF INCINERATION FOR IGNITABLE WASTES -- WASTEWATER AND NON-WASTEWATER. THIS IS ARBITRARY AND WITHOUT BASIS.

54 Fed. Reg. 48,420, column 2

EPA has been unnecessarily restrictive in proposing incineration as treatment technology of ignitable wastes. Several ignitable wastes are very well treated biologically -- acetone, methyl ethyl ketone, methyl isobuyl ketone, etc. Yet, the Agency is proposing that such wastes can only be incinerated or recovered. Aggregation of process wastewaters containing these constituents for biological treatment is eminently practical and efficient while being protective of the environment. Each of the compounds is biodegradable and water soluble to an extent which makes air stripping inefficient. Yet the Agency is proposing that only incineration or recovery is acceptable. This is not only unnecessarily restrictive, it will be disruptive of biological treatment systems which have been designed specifically to handle such process streams, streams which are nonhazardous at the headworks to the treatment system.

Dow can understand EPA's concern that proper treatment must take place. However, Dow cannot understand the Agency's position that all such treatment must take place prior to land disposal or treatment in land-based units. This completely eliminates the use of surface impoundments for treating dilute, aqueous, nonhazardous waste streams which are well suited to such treatment. EPA should recognize biological treatment as long as at least the influent to the treatment system is nonhazardous. A more appropriate criteria should allow such treatment as long as the in-basis concentrations, in contact with the soil, is non-hazardous.

COMMENT NUMBER:	2-A-6
DOCKET NUMBER:	LD12-00179
COMMENTER:	DOW CHEMICAL
ISSUE:	D001-Characteristic Ignitable Wastes
SUBISSUE:	Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents (that indeed may provide the ignitability characteristic to the waste).

COMMENT NUMBER:	2-A-6 (continued)
DOCKET NUMBER:	LD12-00179
COMMENTER:	DOW CHEMICAL
ISSUE:	D001-Characteristic Ignitable Wastes
SUBISSUE:	Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-A-7
Docket Number: LD12-00189
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning wastes in the
Comment: Ignitable Liquids Subcategory

2. IGNITABLE WASTES

A. THE PROPOSED TREATMENT STANDARDS FOR D001 IGNITABLE WASTES DO NOT TAKE INTO ACCOUNT DILUTE AQUEOUS WASTES

Du Pont treats various aqueous process wastes in central wastewater treatment facilities. Some of these process wastes test positive for ignitability at the point of generation (e.g. scrubber vaccuum jets). As illustrated in Table I below, it is possible, in water, to have low concentrations of ignitable constituents that have a flash point less than 140 degrees F. The chemicals represented in Table I are chemicals that are common in many of Du Pont process wastewaters and would be expected to be common throughout the chemical industry. Du Pont believes that EPA, in establishing a BDAT standard of incineration, did not take into account dilute aqueous wastes that exhibit the RCRA characteristic of "ignitability."

When the Agency initially classified ignitable wastes, commenters were concerned that a flashpoint of 140 degrees F may improperly include many liquid wastes such as wine, latex paint and other water borne coatings that contain low concentrations of volatile organics such as alcohol. The concern was that these materials would "flash" in the specified analytical method for determining "ignitability", but would not sustain combustion because of the high percentage of water in the waste stream. The provision in the regulations that exempts from the ignitability characteristic aqueous solutions with alcohol concentrations of less than 24% by volume alleviates the concern for wastes containing alcohol. The problem remains, however, because other wastes [e.g. process wastewaters containing methyl iso-butyl ketone (MIBK)] are ignitable at low concentrations.

Comment Number: 2-A-7 continued
Docket Number: LD12-00189
Commenter: DuPont
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment issues concerning Aqueous Wastes in the Ignitable Liquids subcategory
Comment:

TABLE I

IGNITABLE CONSTITUENTS IN WATER

CONSTITUENT	% IN WATER	FLASHPOINT (Deg F)
Acetone	1	156
	2 *	140 *
	5	95
Methyl Isobutyl Ketone (MIBK)	1	97 **
	2	82
Methylethyl Ketone (MEK)	1	122
	2	95
	5	82
Tetrahydrofuran	1	86
n-Butyl Alcohol	1	195 **
	4	140 *
	5	122
Isopropyl Alcohol	1	189 **
	4	140 *
	5	131

* Interpolated to a flashpoint of 140 degrees F
** Flash but vaporization of water caused the flame to go out

Comment Number: 2-A- 7 continued
Docket Number: LD12-00189
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment issue concerning aqueous wastes in the Ignitable Liquids Subcategory
Comment:

B. THE INCINERATION STANDARD AS WELL AS EPA'S PROPOSED DILUTION RESTRICTION INTERPRETATIONS ARE IMPRACTICAL AND WILL CAUSE SIGNIFICANT DISRUPTION

As is typical for many of our plants, one of our Textile Fibers plants discharges small quantities of laboratory chemicals to the process wastewater stream for biological treatment. These chemicals are biodegradable in the appropriate concentrations and the mixture of small amounts of laboratory wastes with the remainder of the process wastewaters at the plant produces organic concentrations very amenable to biological treatment and destruction. For example, acetone is used at this plant primarily as an equipment rinsing and drying agent. The rinsate, which is sewered, would probably possess the ignitability characteristic, but quickly loses such characteristic when mixed in the sewer line such that by the time the wastewater enters the surface impoundment-based biological treatment plant, the characteristic of ignitability has long since disappeared. The treatment plant was designed to handle and treat these types of organic streams and achieves significant organic concentration reductions required by the CWA. It is our interpretation that aqueous solutions with alcohol concentrations of less than 24% by volume are not defined as ignitable wastes [40 CFR 261.21(a)(1)]. If this interpretation is incorrect, the number of waste streams affected by the new interpretation of impermissible dilution and the carry-through policy increases significantly. Chemicals used at this plant and many others may result in the discharge of minor amounts of ignitable waste streams including:

- Methanol -- used as a reagent and solvent in several laboratory analyses, but its main use is as a cleaning agent for laboratory viscometers. The cleaning solution, which is generally sewered for biological degradation of the methanol, would probably possess the ignitability characteristic.

Comment Number: 2-A-7 continued
Docket Number: LD12-00189
Commenter: DuPont
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the Ignitable liquids subcategory
Comment:

- **1-Propanol -- used as a titrant in an acidity determination for dimethylformamide solvent. The resultant titrated sample could possess the ignitability characteristic.**

We are unclear as to whether these streams could be considered "impermissibly diluted" as a result of their discharge to a wastewater treatment plant specifically designed to handle such organics, or whether these laboratory wastes would continue to fall within the laboratory exemption of 261.3 because the amount of the organics discharged is so minor. A strict interpretation could preclude the use of non-MTR (Subtitle D) surface impoundments that are an integral part of many of our plant wastewater treatment systems.

Du Pont does not believe EPA has adequately considered aqueous wastes exhibiting characteristics of ignitability during the development of the "Third-Third" proposal. In particular, EPA erroneously assumes that dilute wastestreams, amenable to biological treatment, must result from inappropriate and impermissible dilution. Furthermore, Du Pont does not believe that it is the Agency's intent to prohibit biological treatment of such wastes, particularly since these wastes are biodegradable and often contain other low level organic constituents requiring biological treatment. In the proposed regulations the Agency recognizes that some of the organics are water soluble and can be biodegraded in some wastewater treatment systems. We are very concerned that EPA's interpretations based on an incomplete review of applicable data and potentially affected facilities may place our surface-impoundment based wastewater treatment systems in jeopardy for no apparent environmentally-related reason.

Comment Number: 2-A-7 continued
Docket Number: LD12-00189.
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous Wastes in the
Comment: Ignitable Liquids Subcategory

Du Pont encourages the Agency to reevaluate its positions on these wastewaters and its determinations as to what constitutes "impermissible" dilution. In the interim, we submit the EPA should establish the BDAT standard at the characteristic level. Moreover, Du Pont encourages the Agency to allow aggregation and collection of these waste streams for wastewater treatment in facilities governed by CWA discharge permits. Since hazardous constituents, as well as aggregation and collection of process wastes, are already regulated by the CWA, further regulation is unnecessary. Of more important note to Du Pont, as demonstrated in the examples below, such unrealistic interpretations by EPA will cause significant disruption of industrial operations.

Comment Number: 2-A-7 (cont.)
Docket Number: LD12-00189
Commenter: Du Pont
Issue: D001 - Characteristic Ignitable Wastes
Subissue:
Comment: Treatment Issues Concerning Aqueous wastes in the Ignitable liquids subcategory

The following examples describe management of "characteristic" wastes at Chambers Works and discuss our interpretation of the potential impact of the proposed regulations:

C. EXAMPLE #1 - ON-SITE GENERATED D001 AQUEOUS WASTE

During the manufacture of an anti-oxidant product at the plant, a wastewater stream containing up to 5% methyl ethyl ketone (MEK) [nonwastewater by EPA definition] as the primary organic constituent is produced. This stream is generated from a decantation step that extracts impurities and removes water of reaction from the organic liquid product. The waste stream is generated at a high instantaneous rate and is ignitable at the point of generation, e.g. exit from the decanter. The waste stream is aggregated and collected as described above for treatment at the on-site WWTP.

As an incidental result of the aggregation and treatment, the waste loses the characteristic of ignitability and, according to EPA definitions, is converted from a nonwastewater to a wastewater. Effluent from the central WWTP is in compliance with NPDES effluent limits and does not contain detectable amounts of MEK. Furthermore, wastewater treatment residues (primary sludge) generated at the WWTP are no longer ignitable and do not contain detectable amounts of MEK (detection limit ranges from 5 - 100 ppm in the sludge). The MEK, that caused the waste to be "ignitable", has been destroyed/removed at the WWTP. Empirical data from the literature confirms that MEK is highly biodegradable in an acclimated biological treatment system.

Comment Number: 2-A-7 (continued)
Docket Number: LD12-00.189.
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning aqueous waste
Comment: Ignitable Liquids Subcategory

Although significant treatment of the MEK can be demonstrated, we are concerned that EPA may require the plant to incinerate the full volume of primary sludge because of "carry-through" of the BDAT standard for the initial nonwastewater, ignitable MEK waste. EPA appears to be requiring such an unreasonable result due to the aggregation of the nonwastewater ignitable waste stream, even though the MEK, at the appropriate concentration, is highly biodegradable. Since treatment at the WWTP occurs in tanks and wastewaters are discharged through an NPDES outfall, we conclude that the plant wastewaters are not prohibited wastes, nor are they subject to the Agency's antidilution requirements. However, because the sludge derives in part from treatment of nonwastewater ignitable streams, the "incineration, fuel substitution or recovery" criteria may carry through to the sludge even though the sludge does not exhibit the ignitability characteristic. (Du Pont does recognize that a national capacity variance has been proposed for non-atomizable ignitable wastes and would therefore not have to immediately incinerate the primary sludge. This, however, merely delays the significantly adverse consequences of this absurd interpretation by the Agency.) We also submit and believe that the Chambers Works primary and secondary sludges, based on this "nonwastewater BDAT characteristic carry through" principle were not included in the "volume" calculation for D001 non-atomizable nonwastwaters requiring incineration for determining the availability of nationwide capacity and the potential need for a two-year national capacity variance. We discuss this point further in our comments on the Agency's capacity determinations.

Solutions to the "impermissible dilution" issue are limited if EPA persists with its current interpretations. Retrofit and new designs of existing facilities would be time consuming, costly and impossible to achieve before May 8, 1990. At Chambers Works we would be required to reconfigure the process areas (new piping and segregation), and the end result would be a requirement to incinerate a biodegradable waste containing greater than 95% water. In many areas, retrofit would not be sufficient and therefore major process changes and/or potential shutdowns would be required. There are often numerous problems associated with space and logistics of implementing source treatment, not to mention associated permitting issues.

Comment Number: 2-A- 7 (continued)
Docket Number: LD12 00189.
Commenter: Du Pont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous wastes in the Ignitable liquids subcategory
Comment:

D. EXAMPLE #2 - ON-SITE IGNITABLE WASTE TREATED AT THE WWTP

An identical situation occurs in another process area at Chambers Works, where an ignitable methyl isobutyl ketone (MIBK) waste stream is generated. MIBK is recovered from this process and reused. At the critical cut in the spent MIBK collection step, however, it is possible to have up to 2% MIBK in the waste stream. The waste at the point of generation is therefore an ignitable "nonwastewater." This waste stream is collected in a sump with other process wastes and then loses its characteristic of ignitability. The sump, after the collection step, is explosion tested to ensure safety and elimination of hazards that could result if an unexpected flow of MIBK occurs. The MIBK waste is treated at the WWTP. Biochemical oxygen demand (BOD) tests and literature data clearly indicate that MIBK is biodegradable in acclimated biological treatment systems.

As in example #1, based on our understanding of EPA's proposal, Chambers Works may be charged with "impermissible dilution" and may be required to incinerate the primary sludge or segregate and collect the ignitable waste stream (containing greater than 97% water) for incineration.

Comment Number: 2-A-7 (continued)
Docket Number: LD12-00189
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the
Comment: Ignitable Liquids subcategory

~~E.~~ EXAMPLE #3 - OFF-SITE IGNITABLE WASTE TREATED AT THE WWTP

Chambers Works not only treats on-site generated process wastes, but also receives wastes from a variety of outside sources (including other Du Pont plants within the U. S.).

Chambers Works managed 2.5 million gallons of ignitable wastewaters in 1989 (approximately 10% from other Du Pont sites). Of the 2.5 million gallons of ignitable wastewaters managed at Chambers Works, 1.8 million gallons qualified as a nonwastewater (by EPA's definition) and would no longer be acceptable at Chambers Works. The difficulties arise from the revised interpretation of dilution, the BDAT limits established for characteristic wastes and the very narrow definition of wastewater and nonwastewater. Based on EPA's new proposed interpretation, Du Pont's Chambers Works may be charged with impermissible dilution and may be required to incinerate its wastewater sludges if ignitable nonwastewaters are accepted at Chambers Works. We believe this to be a technically unjustified result and implore the Agency to revise its proposed interpretations. EPA should allow for such reasonable treatment of these materials in facilities, like the Chambers Works, that are capable of achieving efficient treatment that is protective of human health and the environment.

The Chambers Works WWTP does not accept bilayered materials and checks each truck prior to unloading at the WWTP for multiple layered materials. Therefore, the ignitable constituents are either water miscible or contain an extremely thin film of ignitable material resulting from a less than 100% efficient separation. Ignitable wastes accepted at the WWTP exhibit a flash point below 140 degrees F, but do not sustain a flame due to the large volume of water in the waste streams.

Comment Number: 2-A- 7 (continued)
Docket Number: LD12- 00189
Commenter: DuPont
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the
Comment: Ignitable Liquids subcategory

For example, Chambers Works accepts wastewaters from its subsidiary Conoco containing between 0.2 - 0.4 % dissolved organic carbon (DOC) and 1.2 - 1.4 % solids. [Note: For low solids content in these ranges, DOC and TOC are essentially the same.] The wastes are not multilayered; however, due to a very thin oily film, the waste stream exhibits the characteristic of ignitability. This waste does not pose a problem to the Chambers Works WWTP because the material is biodegradable and because treatment occurs in a tank regulated through an NPDES discharge. However, the solids content would qualify this waste (by EPA definition) as a nonwastewater. If Du Pont accepts this ignitable nonwastewater, the plant could be required to incinerate the wastewater treatment sludges. Du Pont would therefore elect not to treat this biodegradable waste, containing greater than 98% water, due to the potential BDAT standard carry through for this characteristic waste.

In 1989, wastes from oil tank washouts represented a significant fraction (400,000 gallons) of the D001 wastes treated at Chambers Works. We believe that there is no environmental benefit to incinerating this type of waste. There would be high and wasteful energy expenditures to incinerate a material containing greater than 98% water. In fact, the heat of combustion of such wastes is insufficient to vaporize the water.

Comment Number: 2-A-7 (continued)
Docket Number: LD12-00189
Commenter: Du PONT
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the Ignitable Liquids Subcategory
Comment:

The above examples illustrate the pervasive problem with establishing an incineration standard for ignitable wastes that EPA defines as nonwastewaters, but that have significant quantities of water, making them unattractive for incineration. There are numerous other examples from outside wastes received at the Chambers Works, with a total potential impact in excess of 1.8 million gallons of wastewaters that would no longer be accepted at Chambers Works. These wastes average less than 2.5% DOC and 2% TSS (not typically exceeding 5% DOC) and are generally greater than 95% water. Du Pont encourages the Agency to reevaluate its approach to establishing BDAT standards for aqueous D001 wastes before finalizing incineration as a BDAT standard. Du Pont also believes strongly that reasonable aggregation and collection of wastes for treatment in a central wastewater treatment facility regulated under the CWA should not, in any way, constitute so-called "impermissible dilution."

COMMENT NUMBER: 2-A-7
DOCKET NUMBER: LD12-00189
COMMENTER: DuPont
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to *require* that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents (that can provide the ignitability characteristic to the waste).

COMMENT NUMBER:	2-A-7 (continued)
DOCKET NUMBER:	LD12-00189
COMMENTER:	DuPont
ISSUE:	D001-Characteristic Ignitable Wastes
SUBISSUE:	Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

With respect to the clarification regarding the D001 liquid exclusion for aqueous alcohol wastes which is found in 40 CFR Section 261.21(a)

COMMENT NUMBER: 2-A-7 (continued)
DOCKET NUMBER: LD12-00189
COMMENTER: DuPont
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

that states that a solid waste exhibits the characteristic of ignitability if "it is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°F). . ." The Agency notes that, in this definition, the term alcohol refers to any alcohol or combination of alcohols. [Note: If the alcohol has been used for solvent properties and is one of the alcohols specified in EPA Hazardous Waste No. F003 or F005, the waste must be coded with these Hazardous Waste Numbers (which cover the hazard of ignitability).]

Comment Number: 2-A-8
Docket Number: LD12- 00190
Commenter: Union Carbide
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in
Comment: The Ignitable Liquids Subcategory

Secondary emission concerns of the Agency are Unwarranted. The Agency also stated that the reason for prohibiting dilution of these characteristic ignitable wastes was to minimize air emissions from wastewater treatment facilities. UCC believes this concern by the Agency is unwarranted because of their continued use of overestimated emissions. For example, CMA demonstrated that benzene emissions from waste operations were drastically overestimated by EPA in the recently proposed Benzene NESHAP rule. Specific data from one UCC facility also indicated that 70 percent of the influent benzene to a large impoundment was biodegraded while only 22 percent was lost to the air. Agency models for this same facility estimated 70 to 90 percent of the benzene was lost to the air. A second problem with this Agency concern is that the secondary air emission issue does not account for the solubility and strippability of various ignitable wastes. For example, one UCC facility sends an ignitable methanol laden stream into the process sewer. Upon co-mingling, the stream loses its characteristic of ignitability. The methanol, which is very soluble in water, does not strip to the air at the surface impoundment, but is biodegraded. UCC encourages the Agency to deal with this secondary air emission

Comment Number: 2-A- 8 (continued)
Docket Number: LD12-00190
Commenter: Union Carbide
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
Comment:

issue in a separate rulemaking. In fact, based on the recent regulatory agenda, a proposed rule is due out that will address air emissions from TSD tanks and surface impoundments.

Therefore, UCC urges the Agency to allow characteristic hazardous wastes to comingle and aggregate in the confines of the process sewer for the purposes of making wastes amenable to biological treatment. This, combined with the establishment of BDAT treatment standards for characteristic wastes at their listing level, would allow facilities to comply with LDR limits and meet their NPDES permit limits. All of this would occur with minimal impact on waste generation and emissions to other media while preserving valuable incineration capacity.

Comment Number: 2-A-8 (continued)
Docket Number: LD12-00190.
Commenter: Union Carbide
Issue: D001- Characteristic Ignitable Wastes
Subissue:
Comment: Treatment Issues concerning aqueous wastes in the Ignitable liquids subcategory

7) Treatment Standards for Ignitable Liquids - The establishment of burning or recovery as the only acceptable treatment methods for ignitable liquids is not practical for dilute ignitable streams comprised mostly of water. Separate standards should be established for ignitable wastewaters (TOC < 1%, TSS < 1%) to allow biological treatment or other alternatives where destruction can be demonstrated. The Agency has stated that incineration is not practical for wastewaters; however, a stream with <1% by weight TOC alcohol concentration could have a flashpoint of less than 140 degrees F. The BTU value of such a stream would be so low that incineration or fuel substitution would be impractical. Biological treatment, on the other hand, would be an excellent treatment standard for such a stream. Most dilute ignitable streams would undergo rapid and effective biodegradation.

COMMENT NUMBER: 2-A-8
DOCKET NUMBER: LD12-00190
COMMENTER: Union Carbide
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency is still concerned about the air emissions associated with treatment of wastes containing volatile organic constituents, and the commenter's response is not especially reassuring, but believes that these concerns are best controlled by establishing air emission limitations in the future.

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be

COMMENT NUMBER: 2-A-8 (continued)
DOCKET NUMBER: LD12-00190
COMMENTER: Union Carbide
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents.

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-A-9
Docket Number: LD12-00197
Commenter: Sterling Chemicals
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous Wastes in The Ignitable Liquids Subcategory
Comment:

B. Comments on Specific Characteristic Wastes

1. **The Agency's data base grossly underestimates the volume of D001 (ignitability) characteristic wastes subject to BDAT because of the Agency's proposed interpretation that non-hazardous residues separated from characteristic ignitable wastes must also meet the BDAT standard. The Agency has ignored the large volumes of wastewater that will require treatment based on this proposed interpretation. The Agency should not extend the BDAT standards to include waters and nonwastewaters that no longer exhibit the ignitability characteristic.**

The Agency has proposed the point of generation of a hazardous waste to be a point prior to any dilution or aggregation. See id. at 48,495. Based on this interpretation, the Agency has substantially increased the volume of hazardous waste that must meet the "incineration, fuel substitution or recovery" BDAT standard. Volumes may actually be orders of magnitude higher than the Agency has estimated. This discrepancy arises because of the use of organic-water separation.

Organic-water separation is used to aggregate wastes and to separate water from combustible organics. This treatment process reduces the volume of waste before final treatment, and is always necessary when organics are recovered for fuel substitution or recycling. The organic-water mixture fed to a separator often exhibits the D001 characteristic. By today's interpretation, not only the separated ignitable organic phase but also the nonignitable water phase requires treatment to BDAT standards. See id. at 48,421 and 48,490. This discharged water generally not only no longer exhibits the D001 characteristic, neither will it support combustion. Water treatment by incineration increases the total D001 characteristic waste volume by orders of magnitude. This orders of magnitude increase has not been included in the capacity evaluation, yet must be considered.

Comment Number: 2-A-9 (continued)
Docket Number: LD12-00197.
Commenter: Sterling Chemicals
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the
Comment: Ignitable liquids subcategory

For example, Sterling Chemicals operates a small organic-water separator to separate a water phase from ignitable organics. The D001 ignitable organics are burned in utility boilers on site and the water is biologically treated. Separated water no longer exhibits a D001 characteristic. Responses to Agency questionnaires would not have included these volumes since they are not hazardous wastewater. Based on the proposed interpretation, the water phase, though not a hazardous waste, is also subject to BDAT treatment. Sterling Chemicals burns approximately 0.3 million gallons per year D001 hazardous waste organics in on site utility boilers. The proposed interpretation adds at least 0.39 million gallons of new D001 wastewater, for at least a 125 percent increase in total D001 waste requiring treatment to BDAT standards.

Sterling Chemicals' organic-water separation systems are small compared to other petrochemical facilities and petroleum refineries. The total impact of the additional wastewater on the reported available liquid injection incineration capacity cannot be estimated at this time.

Fuel substitution and recovery are inappropriate treatment methods for organic-water separator waters. These waters would require liquid injection incineration if BDAT were promulgated because of their low heat value. The Agency estimates available liquid injection capacity for atomizable wastes to be approximately 249 million gallons per year. However, this estimate exaggerates capacity since treatment is only the final step. The estimate ignores storage capacity at the generating and treatment sites and transportation to the treatment site. The estimate also ignores the need to modify facilities to contain and transfer the non-hazardous wastewater to the new storage facilities, and the need for any associated permit modifications. These facilities and compliance activities will require substantial effort and time.

Comment Number: 2-A-9 (continued)
Docket Number: LD12-00197.
Commenter: Sterling Chemical
Issue: D001- Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning Aqueous wastes in the Ignitable Liquids Subcategory
Comment:

The Agency should not require additional treatment of wastes and wastewaters below the D001 characteristic limits. Should the Agency insist on promulgating such requirements, and the proposed regulation of non-hazardous waste is adopted, a two year national capacity variance must be granted to prepare the infrastructure to collect, store, and transfer these non-hazardous wastes to incineration. *See* discussion in § A.3. above concerning the questionable value of a variance. This will allow a minimal amount of time to construct on site storage, modify waste management practices as appropriate, and establish interim status. It is likely that even longer variance periods will be necessary to comply at individual locations.

COMMENT NUMBER: 2-A-9
DOCKET NUMBER: LD12-00197
COMMENTER: STERLING CHEMICAL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

EPA agrees with the commenter and considers processes that separate an organic phase to be recovery (or in some cases pretreatment) and hence acceptable treatment provided the separate organic phase is reused or further treated by a technology that will remove the characteristic of ignitability. The aqueous phase would not require further treatment unless it still exhibits the ignitability characteristic (assuming the aqueous phase is not hazardous for any other reason). Thus, the commenter's example of non-ignitable scrubber water requiring further treatment will not occur under the final rule.

Comment Number: 2-A-10
Docket Number: LD12-00259
Commenter: Zimpro Passavant
Issue: D001: Characteristic Ignitable Wastes
Subissue: Treatment Issue concerning Aqueous waste in the Ignitable Liquids subcategory
Comment:

We would like to comment on the proposed Land Disposal Restrictions for Third Scheduled Wastes. Specifically, we will direct our comments to the treatment of D001 Ignitable Liquids. The proposed regulation restricts the treatment of these wastes and wastewaters to thermal destruction technologies such as incineration, fuel substitution, or recovery. The EPA states that these technologies will completely remove the characteristic of low flash point by completely destroying the VOCs, thereby rendering the waste nonignitable.

There are, however, other technologies which can also destroy the VOCs and remove the ignitability characteristic of the D001 wastes and wastewaters. I specifically refer to the following technologies:

1. Wet air oxidation
2. Wet air oxidation followed by biological treatment
3. Anaerobic treatment
4. Anaerobic treatment followed by aerobic treatment

Wet air oxidation by itself can be used to destroy the VOCs and, hence, remove the ignitability characteristic. Wet air oxidation and/or biological treatment can produce a highly treated effluent which will comply with rigorous treatment standard such as those established for the F001-F005 waste categories(1,2).

Comment Number: 2-A-10 (continued)
Docket Number: LD12-00259
Commenter: Zimpro Passavant
Issue: D001: Characteristic Ignitable Wastes
Subissue: Treatment Issues concerning aqueous wastes in the Ignitable Liquids Subcategory
Comment:

Anaerobic treatment of solvent wastes can be accomplished in an enclosed digester, thereby, circumventing the emission of VOCs into the atmosphere. The anaerobic treatment process will convert organic compounds to methane gas and carbon dioxide. The produced gas typically can be used as a fuel. Any VOCs that are volatilized during the anaerobic process will contribute to the fuel value of the digester gas and will be destroyed in the subsequent combustion of the digester gas. When a subsequent aerobic treatment process is coupled with the anaerobic treatment process, a highly treated effluent can be produced.

We would support the establishment of a treatment standard for both the waste and wastewater categories of the D001 Ignitable Characteristic Wastes. We believe that the similarities in D001 Ignitable Wastes and the F001-F005 solvent wastes call for similar treatment requirements, i.e. treatment standards. We are aware of solvent wastes and wastewaters which are classified in the F001-F005 category, that also have the ignitable characteristic. After treatment of these wastes and wastewater to comply with the F001-F005 treatment standards, the ignitable characteristic is removed. We believe a similar treatment standard should be established for the D001 Ignitable Characteristic Wastes.

Finally, we believe that the establishment of treatment standards for the D001 Ignitable Characteristic Wastes would also encourage the development of new treatment technologies which are more economical that the thermal destruction technologies.

COMMENT NUMBER: 2-A-10
DOCKET NUMBER: LD12-00259
COMMENTER: ZIMPRO PASSAVANT
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA also agrees with the commenter that some D001 ignitable liquids have been shown to contain organic constituents that are also constituents in F001-F005 solvents. The Agency studied the option of transferring the standards for these constituents from the corresponding F001-F005 standards promulgated in the November 7, 1986, final rule (51 FR 40642). However, The Agency believes that this option would create an unnecessary burden on the regulated community since the majority of D001 wastes in the Ignitable Liquids Subcategory should not contain these constituents and that most wastes containing F001-F005 constituents are

COMMENT NUMBER: 2-A-10 (continued)
DOCKET NUMBER: LD12-00259
COMMENTER: ZIMPRO PASSAVANT
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

probably cases of misclassification. Misclassifying F001-F005 wastes as D001 is currently one of the largest enforcement issues in the RCRA program. Such misclassification is, of course, illegal and a serious infraction as it avoids the Congressionally mandated treatment standards for the prohibited solvent wastes. Indeed, solvents were the wastes Congress prioritized for prohibition and treatment. EPA believes, however, that the problem is best handled through enforcement rather than establishing treatment standards for the misclassified wastes because it seems an unreasonable burden to require generators of authentic D001 wastes to conduct the significant amount of testing and certification required under the land disposal restrictions when it is likely that the constituents will not be present in most true D001 wastes. Therefore, the Agency is not promulgating concentration-based D001 treatment standards based on a transfer of F001-F005 data at this time, although it may reevaluate this decision in the future.

Consequently, EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters sub- category. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-10 (continued)
DOCKET NUMBER: LD12-00259
COMMENTER: ZIMPRO PASSAVANT
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. EPA believes that wet air oxidation and biological treatment are applicable for wastes in these subcategories. See 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard. These include the technologies cited by the commenter.

Comment Number: 2-A-11

Docket Number: LD12-L0005.

Commenter: KODAK

Issue: D001: Characteristic Ignitable Wastes

Subissue: Treatment Issues Concerning Aqueous Wastes in the

Comment: Ignitable Liquids Subcategory

D001 IGNITABLE WASTES

Treatment of Ignitable Liquids in Wastewater Treatment Units

The Agency has proposed a treatment standard of incineration, fuel substitution, or recovery as methods of treatment for D001 wastes in the ignitable liquids subcategory. This proposed standard eliminates the possibility of utilizing biological treatment units to treat liquid D001 wastes even though EPA recognized at 54 FR 48420 that "some of these organics are water soluble and can theoretically be biodegraded in some wastewater treatment plants." EPA should not prohibit biological treatment for all D001 wastes as it is a viable, appropriate method of treatment for low solvent content wastewater streams. In fact, removal of D001 solvent streams may be detrimental to the operation of wastewater treatment plants. Organic wastes are necessary to maintain a healthy biomass for the effective removal and/or destruction of organic and inorganic wastes.

The establishment of incineration, fuel substitution, or recovery, as treatment standards may be appropriate for high organic content wastes in the D001 liquids subcategory. But this treatment technology does not adequately address low organic content streams. A wastestream composed of 95% water and 5% organic which meets the characteristic of ignitability may not be amenable to incineration or fuel substitution due to the high water content and, depending upon the quantity generated, may not be suitable for recovery. In these cases, treatment in a wastewater treatment unit is appropriate.

Comment Number: 2-A- 11 (continued)
Docket Number: L012- L0005
Commenter: KODAK
Issue: D001: Characteristic Ignitable Wastes
Subissue: Treatment issues concerning aqueous wastes in the Ignitable liquids subcategory
Comment:

To address biological treatment of low organic content streams, the Agency could set a composition level of organics that is acceptable for treatment in a wastewater treatment plant and rely on discharge limits established under Sections 402 or 307(b) of the Clean Water Act to protect human health and the environment. In determining a wastewater classification level, EPA may wish to maintain consistency with the F001-F005 land disposal restriction definition and select 10% as the maximum level of D001 ignitable liquids which can utilize biological treatment. In finalizing the F001-F005 listing, the Agency recognizes at 50 FR 53317 that at the 10% threshold for ignitable solvents "that these solvents may not be ignitable at such low concentrations", thus the characteristic of ignitability is removed. For this reason, we suggest that 268.42(a)(7) be revised to allow biological treatment as an additional treatment technology for waste streams containing significant quantities of water. We suggest the following wording:

> Incineration, fuel substitution, or recovery as methods of treatment for all forms of:
>
> > D001 - Ignitable liquids subcategory based on 261.21(a)(1)
>
> or biological treatment conducted in accordance with Section 402 or 307(b) of the Clean Water Act for:
>
> > D001 ignitable liquids which comprise less than 10 percent of the wastewater influent.

COMMENT NUMBER:	2-A-11
DOCKET NUMBER:	LD12-L0005
COMMENTER:	KODAK
ISSUE:	D001-Characteristic Ignitable Wastes
SUBISSUE:	Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

The final rule is structured to allow biological treatment of ignitable wastes so long as they are not >10 percent TOC. Given that the commenter refers to wastes at 5 percent TOC, the concern in the comment should be satisfied.

Comment Number: 2-A-12
Docket Number: LD12-L0034
Commenter: HWTC
Issue: D001: Characteristic Ignitable Wastes
Subissue
Comment: Treatment Issues Concerning Aqueous wastes in The Ignitable liquids subcategory

B. Response To Data Comments Pertaining To Biological Degradation Of D001 Waste

Certain comments (Docket Numbers 00094, 00189, and 00190) address the treatment standard for D001 – specifically EPA's proposed BDAT treatment by incineration, fuel substitution or recovery for liquid ignitables, and suggest that EPA should allow also for biological treatment as BDAT for ignitable wastewaters.

We concur that biological treatment of D001 wastewaters is appropriate (see Table 1 in Dupont Comments, Docket Number 00189, page 3 and Union Carbides comments, Docket No. 00190, page 12). Wastewater treatment systems using biological treatment are well proven for these constituents.

COMMENT NUMBER: 2-A-12
DOCKET NUMBER: LD12-L0034
COMMENTER: HWTC
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard, which include biological treatment as cited by this commenter.

Comment Number: 2-A-13

Docket Number: LD12-00.179.

Commenter: Dow Chemical

Issue: D001- Characteristic Ignitable Wastes

Subissue: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Sucategory

Comment:

A waste stream containing 1.5 percent TOC which is hazardous due to ignitability would be considered a nonwastewater stream even though it is currently handled as wastewater and is treated in a wastewater treatment unit. Under EPA's current proposal, this stream would have to be incinerated rather than biotreated, even though at the headworks of the biological treatment facility, the stream is no longer hazardous after aggregation for treatment. Still, any sludge generated in that treatment would have to meet the treatment standard for nonwastewater and be incinerated whether it also exhibits the characteristic of ignitability or not. Otherwise, impermissible dilution and impermissible switching between treatability groups would have taken place. Yet the biological treatment facility was designed to treat this waste stream and has been effectively treating it for years.

The artificially contrived definition of wastewater plus the specification of a technology for treatment which does not allow for biological treatment ignores the efficient and environmentally sound systems which have been set up through the years for compliance with the Clean Water Act. Wastes which are not hazardous at the headworks to a treatment facility should not be subject to further regulation under Subtitle C.

Comment Number: 2-A-13 continued

Docket Number: LD12-00179

Commenter: Dow Chemical

Issue: D001- Characteristic Ignitable Wastes

Subissue:

Comment: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

XXIV. EPA HAS SPECIFIED A TREATMENT TECHNOLOGY OF INCINERATION FOR IGNITABLE WASTES -- WASTEWATER AND NON-WASTEWATER. THIS IS ARBITRARY AND WITHOUT BASIS.

54 Fed. Reg. 48,420, column 2

EPA has been unnecessarily restrictive in proposing incineration as treatment technology of ignitable wastes. Several ignitable wastes are very well treated biologically -- acetone, methyl ethyl ketone, methyl isobuyl ketone, etc. Yet, the Agency is proposing that such wastes can only be incinerated or recovered. Aggregation of process wastewaters containing these constituents for biological treatment is eminently practical and efficient while being protective of the environment. Each of the compounds is biodegradable and water soluble to an extent which makes air stripping inefficient. Yet the Agency is proposing that only incineration or recovery is acceptable. This is not only unnecessarily restrictive, it will be disruptive of biological treatment systems which have been designed specifically to handle such process streams, streams which are nonhazardous at the headworks to the treatment system.

Dow can understand EPA's concern that proper treatment must take place. However, Dow cannot understand the Agency's position that all such treatment must take place prior to land disposal or treatment in land-based units. This completely eliminates the use of surface impoundments for treating dilute, aqueous, nonhazardous waste streams which are well suited to such treatment. EPA should recognize biological treatment as long as at least the influent to the treatment system is nonhazardous. A more appropriate criteria should allow such treatment as long as the in-basis concentrations, in contact with the soil, is non-hazardous.

COMMENT NUMBER: 2-A-13
DOCKET NUMBER: LD12-00179
COMMENTER: Dow Chemical
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-13 (continued)
DOCKET NUMBER: LD12-00179
COMMENTER: Dow Chemical
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory

RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard, which includes the biological treatment systems urged by the commenter.

Comment Number: 2-A-14
Docket Number: LD12-0027[illegible]2
Commenter: General Dynamics
Issue: D001: Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in The Ignitable Liquids Subcategory
Comment:

THE FOLLOWING COMMENTS ARE OFFERED IN SPECIFIC RESPONSE TO BDAT FOR IGNITABLE LIQUIDS (D001)

On p. 48420 of the proposed rule, the EPA states that biodegredation of D001 Ignitable Liquids is not as protective to the environment as incineration. The concern is that during the dilution and aeration steps significant amounts of volatile organic carbons (VOCs) can be emitted into the air.

We wish to point out that the technology does exist for constructing aerobic bioreactors that do not emit VOCs into the air. We know of one such company that has a design for a bioreactor that is completely isolated from the ambient environment.

It is agreed that D001 wastes should be treated in an effective manner. In establishing that means of treatment, the EPA and industry should work toward the most accesible and appropriate technology. Biodegredation is a more accessible and less expensive technology than incineration for the destruction of D001 Ignitable Liquids. Perhaps the generating company should be given the option of which technology to use.

COMMENT NUMBER: 2-A-14
DOCKET NUMBER: LD12-00272
COMMENTER: General Dynamics
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-A-14 (continued)
DOCKET NUMBER: LD12-00272
COMMENTER: General Dynamics
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. EPA believes that the aerobic bioreactor described by the commenter represents a technology applicable for treatment of wastes in these subcategories. See 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

The Agency is still concerned about the air emissions associated with treatment of wastes containing volatile organic constituents, but believes that these concerns are best controlled by establishing air emission limitations in the future or requiring use of technologies such as the bioreactor described by the commenter that do not emit VOCs into the air.

Comment Number: 2-A-15
Docket Number: LD12-00242.
Commenter: Merck & Co., Inc.
Issue: D001: Characteristic Ignitable Wastes
Subissue: Treatment Issues Concerning Aqueous Wastes in the Ignitable liquids Subcategory
Comment:

Regardless of the issue of waste characteristic levels there are many additional questions concerning the individual standards being established for the various characteristic wastes. In establishing a treatment standard for D001 ignitable liquids subcategory, water solubility and biodegradation in wastewater treatment systems is discussed. The proposal states that this method of treatment is not being allowed for D001 wastes that are water soluble because the biodegradation processes often require an aeration step which can subsequently release volatile organic compounds (VOCs) into the air. However, the VOCs regulated as D001 have been deemed to pose a risk of ignitability only, not toxicity. Nor is there an indication that these emissions would contribute significantly to ozone. Therefore, EPA's concern about releases of VOCs seems unwarranted.

COMMENT NUMBER: 2-A-15
DOCKET NUMBER: LD12-00242
COMMENTER: Merck and Company, Inc.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

The Agency is still concerned about the air emissions associated with treatment of wastes containing volatile organic constituents, but believes that these concerns are best controlled by establishing air emission limitations in the future.

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be

COMMENT NUMBER: 2-A-15 (continued)
DOCKET NUMBER: LD12-00242
COMMENTER: Merck and Company, Inc.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Issues Concerning Aqueous Wastes in the Ignitable Liquids Subcategory
RESPONSE:

treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-B-1
Docket Number: LD10 00031
Commenter: Hazardous Waste Treatment Council
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

A. D001 Waste

D001 waste in the Ignitable Liquids subcategory are, contrary to what EPA defines on page 1093, not just limited to unlisted solvents, paint thinners, oil and miscellaneous organic hydrocarbons. The D001 waste code is widely used by generators for many waste streams containing listed organic constituents. One of our members who operates an incineration facility reviewed 1,746 D001 waste streams received in 1988. The results are tabulated below.

Note that the Table represents waste coded as D001 only, i.e., waste codes F001 through F005 were not used to manifest this waste by the generator. In addition, the percentage halogenated organics present in these D001 streams ranged from 0 to 36% with an average concentration of 2.5%.

Most of these constituents are found also in F001 through F005 waste. It therefore seems that EPA should technology transfer treatment standards from F001 through F005 waste to D001 ignitable liquid subcategory waste.

A treatment standard of "no land disposal based on deactivation" is not adequate for these waste, as merely diluting the waste with sand or water to raise the Flash Point above 140 F is not destroying the high concentrations of toxic constituents present. Dilution is clearly prohibited in the statutes for the Land Disposal Restrictions Regulation. Treatment standards based on performance levels for the BDAT constituents must be established. Otherwise high percentage levels of solvents will end up in land disposal units; with concentrations sufficient to degrade or eat through landfill liners. These percentage levels of BDAT solvent constituents will then pass directly into underlying soil and groundwater.

The HWTC does not agree with EPA on page 1094 that requiring the same treatment standards for F001-F005 waste for D001 waste will impose an unreasonable burden on generators. As shown above our experience is that the F001-F005 solvent constituents are found in the vast majority of D001 waste streams.

Comment Number: 2-B-1 (continued)

Docket Number: LD10 00031

Commenter: Hazardous Waste Treatment Council

Issue: D001 - CHARACTERISTIC IGNITABLE WASTES

Subissue: OTHER ISSUES CONCERNING TREATMENT

Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

VOLATILE ORGANICS AND RANGES IN D001 ONLY WASTES

Note: ( ) denotes a non-BDAT constituent.

Constituent	Total Concentration %	
	Low	High
1,1,1 Trichloroethane	10	25
1,1,2,2 Tetrachloroethane	5	10
1,2 Dichloroethane	5	10
(1,3 Butandiol)	5	10
(2 Pentanol)	5	10
(2 Propanol)	10	20
(2-Ethoxy Ethanol)	5	10
Acetone	11	20
Acetonitrile	20	35
Benzene	3	5
Carbon Disulfide	0	5
Carbon Tetrachloride	5	10
Chloroform	4.25	8.50
Cyclohexane	7.50	15
Ethanol	0.75	14.75
Ether	15	20
Ethyl Ether	0	40
Ethyl Acetate	8.75	15.25
(Ethyl Alcohol)	24.17	32
Ethyl Benzene	0	8
Ethylene Glycol	6	12
Ethylene Vinyl Acetate	5	15
(Heptane)	20	40
(Hexane)	6.25	12.75
Isobutyl Alcohol	0	21
Isopropanol	6	10
Methanol	15	29.40
Methylene Chloride	2.50	14.00
Methyl Ethyl Ketone	18.22	25.63
Methyl Isobutyl Ketone	0	2.82
Methylamine	0	37
(Pentanol)	3	5
Perchloroethylene	5	10
Petroleum Ether	10	20
Styrene	0	95
Toluene	6	15
Trichloroethylene	12.50	17.50
Trichlorotrifluoroethane	2	7
Xylene	17.86	32.61
Vol Organics Not Specified	28.44	44.79

COMMENT NUMBER: 2-B-1
DOCKET NUMBER: LD10-00031
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

EPA agrees with the commenter that some D001 ignitable liquids have been shown to contain organic constituents that are also constituents in F001-F005 solvents. The commenters' table well documents that high concentrations of organics can be present. EPA relied on this information to establish the high TOC subcategory. EPA believes that by forcing treatment of the two wastes most likely to contain high toxic concentrations and most amenable to combustion the incentive to miscode is strongly reduced given that such wastes must be incinerated anyway. The Agency studied the option of transferring the standards for these constituents from the corresponding F001-F005 standards promulgated in the November 7, 1986, final rule (51 FR 40642). However, The Agency believes that this option would create an unnecessary burden on the regulated community since the majority of D001 wastes in the Ignitable Liquids Subcategory should not contain these constituents and that most wastes containing F001-F005 constituents are probably cases of misclassification. Misclassifying F001-F005 wastes as D001 is currently one of the largest enforcement issues in the RCRA program. Such misclassification is, of course, illegal and a serious infraction as it avoids the Congressionally mandated treatment standards for the prohibited solvent wastes. Indeed, solvents were the wastes Congress prioritized for prohibition and treatment. EPA believes, however, that the problem is best handled through enforcement rather than establishing treatment standards for the misclassified wastes because it seems an unreasonable burden to require generators of authentic D001 wastes to conduct the significant amount of testing and certification required

COMMENT NUMBER: 2-B-1 (continued)
DOCKET NUMBER: LD10-00031
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

under the land disposal restrictions when it is likely that the constituents will not be present in most true D001 wastes. Therefore, the Agency is not promulgating concentration-based D001 treatment standards based on a transfer of F001-F005 data at this time, although it may reevaluate this decision in the future.

The Agency believes that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description

COMMENT NUMBER: 2-B-1 (continued)
DOCKET NUMBER: LD10-00031
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic

COMMENT NUMBER: 2-B-1 (continued)
DOCKET NUMBER: LD10-00031
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-B-2

Docket Number: LD10 00037

Commenter: CYANAMID

Issue: D001 - CHARACTERISTIC IGNITABLE WASTES

Subissue: OTHER ISSUES CONCERNING TREATMENT

Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

7. Treatment Standards for Characteristic Wastes (54 FR 1093-1100)

In general we support the Agency's proposals regarding Ignitable (D001) and Corrosive (D002) wastes. We particularly agree with EPA's assessment that requiring individual component analysis of Ignitable wastes would create an unnecessary burden of testing and certification for the regulated community.

COMMENT NUMBER: 2-B-2
DOCKET NUMBER: LD10-00037
COMMENTER: CYANAMID
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

The Agency appreciates this commenter's support with regard to the unnecessary burden of testing and certification that would be created if numerical treatment standards are developed for D001 and D002. Since EPA would probably have to regulate the entire list of BDAT constituents since the compounds in these wastestreams are so diverse.

Comment Number: 2-B-3
Docket Number: LD10 - 00020
Commenter: SOCMA
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY
Comment:

3. Specific Comments

SOCMA supports EPA's proposals regarding Ignitable (D001) and Corrosive (D002) wastes. We strongly agree with the Agency's assessment that requiring analysis of individual components of ignitable wastes would impose unnecessary and burdensome testing and certification on the regulated community.

COMMENT NUMBER: 2-B-3
DOCKET NUMBER: LD10-00020
COMMENTER: SOCMA
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

The Agency appreciates this commenter's support with regard to the unnecessary burden of testing and certification that would be created if numerical treatment standards are developed for D001 and D002. Since EPA would probably have to regulate the entire list of BDAT constituents since the compounds in these wastestreams are so diverse.

Comment Number: 2-B-4
Docket Number: LD12-00172
Commenter: Hazardous Waste Treatment Council
Issue: D001- Characteristic Ignitable Wastes
Subissue: Other Issues concerning treatment standards for
Comment: the Ignitable liquids Subcategory

B. D001

In general, we support the Agency's technology-specific approach to BDAT for D001 wastes. Several member firms within the Council have raised concerns regarding the eligibility of wet oxidation and phase separation by freeze crystallization as being eligible for the D001 technology-specific standards specified in the proposed rule. The proposed rule identifies incineration, fuel substitution and recovery as means of treatment for D001 wastewaters and nonwastewaters. Regarding the wet oxidation technology, a question has been raised regarding why this technology was not considered equivalent to incineration. With regard to the freeze crystallization technology, which separates the aqueous from the solvent phase of a D001 waste, a concern has been raised regarding the status of the aqueous faction after phase separation. Their concern, which would be applicable to other phase separation technologies, is whether the separated aqueous faction must then also be treated via one of the other specified methods (i.e., incineration or fuel substitution) or whether such a recovery/phase separation technology can satisfy the BDAT requirement for the separated wastewater phase by virtue of completing the recovery steps.

Comment Number: 2-6-4 (continued)
Docket Number: LD12-00172
Commenter: Hazardous Waste Treatment Council
Issue: D001 - Characteristic Ignitable Wastes
Subissue: other issues concerning treatment standards for the ignitable liquids subcategory
Comment:

To clarify these uncertainties the Council would recommend the following series of options:

- For the wastewater fraction separated from D001 ignitible by either a freeze crystallization or other recovery/phase separation technology, one approach would be to subject such wastewaters to subsequent carbon treatment. The remaining aqueous phase could be considered to have met the treatment standard. This approach is identical to that previously employed by the Agency in the California List wastes and the Second-Third rulemakings for wastes where carbon absorption was a specified method of treatment. The separated solvent phase as well as the carbon phase containing separated constituents would remain subject to the nonwastewater standards, but the separated aqueous wastewater phase would be considered to have met the technology specific standard at that point. See 54 Fed. Reg. 26624, 26630 (June 23, 1989).

- Another approach would be to specify a minimum percentage of recovery necessary in order to consider the separated wastewater phase as having satisfied the technology specific treatment standard of "recovery". This approach would prevent the use of cursory recovery or separation technologies from satisfying the technology specific standard when they may only recovery/separate minimal amounts of solvent constituents into the nonwastewater phase and leave significant amounts of these constituents in the wastewater. A minimum recovery of 90% of the toxic constituents from wastewaters that by definition contain less than 1% total organic carbon would prevent discharges of all but trace contaminated wastewaters.

- A third approach that has applicability to the recovery/phase separation technologies as well as ensuring eligibility of wet oxidation technologies would be to transfer the standards from F001 through F005 solvents to D001 either instead of or in addition to the technology specific standards. This approach, however, has a significant drawback as noted in the preamble as D001 may have constituent not found in F001-F005 and would therefore be exempt from treatment requirements.

Comment Number: 2-B-4 (continued)
Docket Number: L012-00172
Commenter: HWTC
Issue: D001- Characteristic Ignitable Wastes
Subissue: Other issues concerning treatment standards for the Ignitable Liquids subcategory
Comment:

- Another option would allow the use of wet air oxidation as a specific technology in conjunction with carbon absorption and/or aggressive biological treatment for those parts of the wastestream that meet the wastewater definition. The Agency would then apply the policy noted above first articulated in the Second Third which would consider the wastewater fraction as having met the technology specific standard once it had passed through carbon absorption treatment. Regarding nonwastewater D001, Zimpro, a Council member, has also submitted information and data on the performance of their combined wet oxidation/biological treatment system. Their approach and system design would appear to address the Agency's valid concerns about volatile emissions from biological digestion units. We would ask that the Agency carefully review Zimpro's system for possible inclusion in the D001 BDAT list.

COMMENT NUMBER: 2-B-4
DOCKET NUMBER: LD12-00172
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

EPA agrees with the commenter and considers processes that separate an organic phase to be recovery (or in some cases pretreatment) and hence acceptable treatment provided the separate organic phase is reused or further treated by a technology that will remove the characteristic of ignitability. The aqueous phase would not require further treatment unless it still exhibits the ignitability characteristic (assuming the aqueous phase is not hazardous for any other reason).

EPA has determined that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of

COMMENT NUMBER: 2-B-4 (continued)
DOCKET NUMBER: LD12-00172
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste. The Agency does not believe that wet air oxidation is equivalent to incineration since information indicate that wet air oxidation is applicable to wastestreams containing up to 10 percent TOC.

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous westes. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for

COMMENT NUMBER: 2-B-4 (continued)
DOCKET NUMBER: LD12-00172
COMMENTER: HAZARDOUS WASTE TREATMENT COUNCIL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. EPA believes that wet air oxidation is applicable for wastes in these subcategories. See 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-B-5

Docket Number: LD10-00045

Commenter: STAUFFER CHEMICAL COMPANY

Issue: D001 - CHARACTERISTIC IGNITABLE WASTES

Subissue: OTHER ISSUES CONCERNING TREATMENT

Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

For D001 waste in the Ignitable Liquids subcategory, a treatment standard of "no land disposal based on deactivation" is not adequate. Merely diluting the waste with sand or water to raise the flash point above 140 degrees F. is not destroying the toxic constituents which may be present.

COMMENT NUMBER: 2-B-5

DOCKET NUMBER: LD10-00045

COMMENTER: STAUFFER CHEMICAL COMPANY

ISSUE: D001-Characteristic Ignitable Wastes

SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory

RESPONSE:

The concern voiced by the commenter is most likely to be present for high TOC wastes, where dilution would be impermissible. For other wastes where the most likely hazardous property is ignitability itself, EPA is simply allowing that the hazardous property be removed by any means that does not involve land disposal.

Comment Number: 2-B-6
Docket Number: LD12-00187
Commenter: CMA
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

MCPP Supports The Proposed Treatment Standard For Ignitible Characteristics Wastes.

EPA proposes incineration, fuel substitution or recovery as methods of treatment for D001 ignitible liquids. See 54 Fed. Reg. at 48,422. The Panel supports this treatment standard, particularly the options to apply fuel substitution or recovery to these wastes.

COMMENT NUMBER: 2-B-6
DOCKET NUMBER: LD12-00187
COMMENTER: CMA
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

EPA appreciates the commenter's support for incineration, fuel substitution or recovery as methods of treatment for D001 ignitable liquids. The Agency hopes that this standard will encourage the regulated community to attempt recovery of wastes in the ignitable liquids subcategory.

Comment Number: 2-B-7
Docket Number: LD12-00111
Commenter: MAZCO CORPORATION
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

Characteristic Wastes

The Agency is proposing treatment of characteristic wastes to well below the current level of toxic characteristics, e.g., LDR for D008 is 0.51 mg/l and the characteristic level is 5.0 mg/l.

The Company feels that treatment for LDR as applied to characteristic wastes should be limited to elimination of the characteristic that makes it hazardous. Currently, parameter standards have been established to indicate when a waste becomes hazardous. Thus, it would appear that a waste is non-hazardous if it does not exceed the established standards, e.g., D-008 for lead, E.P. at 5 mg/l. Presumably, the original establishment of these standards was based upon consideration of certain health based risks. Unless these considerations have changed, then LDR treatment standards should be only to these levels. If the health based risks are no longer adequate or flawed in some way, then the proper approach would be to revise the standards for characteristic wastes.

The Company feels this should apply across the spectrum of characteristic wastes, including the pH parameter for D002, Corrosive, and Flash Point of $\leq 140^{\circ}$ for D001, Ignitable.

COMMENT NUMBER: 2-B-7

DOCKET NUMBER: LD12-00111

COMMENTER: MASCO CORPORATION

ISSUE: D001 - Characteristic Ignitable Wastes

SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory

RESPONSE:

In some cases, EPA has determined that treatment below the characteristic level is justifiable. For D001 ignitable liquid wastes containing high concentrations of organics, EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste. See Section III.D. of the final rule preamble.

Comment Number: 2-B-8

Docket Number: LD12-00224

Commenter: Texaco

Issue: D001 - CHARACTERISTIC IGNITABLE WASTES

Subissue: OTHER ISSUES CONCERNING TREATMENT

Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

III. Characteristic Wastes

Treatment beyond characteristic levels for ignitable and alkaline corrosive wastes is unwarranted due to the nature of the hazard of these wastes. For ignitable wastes, once the flashpoint has been raised above the hazardous level, the hazard no longer exists. For example, ignitable solids could be processed through a thermal dryer with vapor recovery of the volatile organics; the residue would be nonhazardous but still require incineration (assuming that fuel substitution and recovery are not feasible).

Treatment below the characteristic level should not be required for ignitable and alkaline corrosive wastes. The neutralization of acid and alkaline corrosive wastes in wastewater treatment systems by the constituents in those wastewaters should be recognized as an acceptable practice and not considered impermissible dilution.

COMMENT NUMBER: 2-B-8

DOCKET NUMBER: LD12-00224

COMMENTER: Texaco

ISSUE: D001 - Characteristic Ignitable Wastes

SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory

RESPONSE:

In some cases, EPA has determined that treatment below the characteristic level is justifiable. For D001 ignitable liquid wastes containing high concentrations of organics, EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste. See section III.D. of the final rule preamble.

Comment Number: 2-B-9
Docket Number: LD-12-00146
Commenter: Leather Industries Research Laboratory
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

A. Proposed BDAT Standards for Certain "D001" Ignitable Liquids Subcategory Wastes

The majority of commercial leathers produced by the tanning industry contain polymeric finish coatings to improve aesthetic and performance characteristics. These are typically protein, nitrocellulose, acrylic, vinyl or urethane polymers applied from aqueous and/or organic solvent systems, to which may be added dyes, pigments, delusterants, oils, waxes, waterproofing agents, etc. depending on specific product requirements. Finish coatings are frequently applied using multi-gun rotary spray equipment. Due to the irregular shape of skins being finished, there is a considerable amount of over-spray, even with the most modern types of spray control. Finish transfer efficiency during leather spraying has been measured at 26.9% without spray control and 44.6% with control.1) The remaining material is lost to over-spray, most of which is collected in a water bath below the feed conveyor. This necessitates frequent machine cleaning to remove accumulated solids (generally known as "spray booth sludge"). This material is predominantly finish solids of extremely high viscosity, but may contain sufficient trapped solvent to give a flash point below 140°F. Thus it must be classified and treated as a D001 Ignitable waste.

EPA proposes to establish incineration, fuel substitution, or recovery as mandatory processes for treatment of D001 Ignitable Liquids (54 FR 48420). In order to promulgate treatment standards for the category of characteristic wastes such as D001 Ignitable Liquids, EPA must establish that the selected technology is "available" and is the "best" such technology that will substantially diminish the toxicity of the wastes or reduce the likelihood of migration of the waste's hazardous constituents. LIA feels the Agency has failed to meet this burden in establishing BDAT for highly viscous ignitable liquids. While incineration, fuel substitution, and recovery may be entirely suitable for liquids with low solids content, such is not the case for those D001 Ignitable Liquids with high viscosity, such as leather finishing spray booth sludge. Due to high solids content, viscous consistency and resulting handling difficulties, such material is clearly unsuitable for fuel substitution or recovery (both of which are currently being utilized successfully for low solids spent solvent from leather finishing operations). In addition, we do not believe incineration is an environmentally prudent or cost effective option. The material would be extremely difficult to feed, and could very likely generate an EP Toxic residue requiring even further treatment. Our experience indicates simple sludge washing and/or drying may be sufficient to render such materials non-hazardous. Therefore, we recommend EPA consider alternative technologies such as sludge washing or drying as the appropriate BDAT for D001 Ignitable Solids or highly viscous D001 Ignitable Liquids (e.g. spray booth sludge, paint sludge, etc.).

COMMENT NUMBER: 2-B-9
DOCKET NUMBER: LD12-00146
COMMENTER: Leather Industries Research Laboratory
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

EPA agrees with the commenter and considers processes that separate an organic phase to be recovery (or in some cases pretreatment) and hence acceptable treatment provided the separate organic phase is reused or further treated by a technology that will remove the characteristic of ignitability. The other phase would not require further treatment unless it still exhibits the ignitability characteristic (assuming the aqueous phase is not hazardous for any other reason). This is because it is a new treatability group. See Section III.F. of the final rule preamble.

Comment Number: 2-B-10
Docket Number: LD12-00668
Commenter: American Petroleum Institute
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

In addition, requiring treatment beyond the characteristic level may result in eliminating some effective technologies from the treatment of hazardous wastes. For example, under the proposed rule, an oil-contaminated tank sludge that is an ignitable hazardous waste would require incineration, fuel substitution, or recovery as the method of treatment. If this sludge was processed through a thermal drier and the vapors were recovered to remove the light hydrocarbons (thus removing the ignitable characteristic), a residue will be generated. Although thermal drying may not recover all VOC's, it can remove a substantial percentage of the VOC's resulting in a residue that no longer exhibits the ignitability characteristic. If the residue is nonhazardous for ignitability, this thermal process should constitute recovery of the ignitable constituents and should satisfy the "recovery" method of treatment for the ignitable hazardous waste. If this treatment is not viewed by EPA as recovery, industry could be forced into incinerating this

Comment Number: Z-B-10 (Continued)
Docket Number: LD12-00168
Commenter: American Petroleum Institute
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

material which could result in additional combustion emissions not found in the thermal drier application.[19] API requests EPA's clarification that any technology (such as thermal distillation) that recovers ignitable constituents satisfies the "recovery" treatment standard if the residue is no longer ignitable.

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[19] Moreover, forced incineration would also strain incinerator capacity and could result in the diversion of capacity from more hazardous waste to less hazardous waste.

COMMENT NUMBER: 2-B-10
DOCKET NUMBER: LD12-00168
COMMENTER: American Petroleum Institute
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

EPA agrees with the commenter and considers processes that separate an organic phase to be recovery (or in some cases pretreatment) and hence acceptable treatment provided the separate organic phase is reused or further treated by a technology that will remove the characteristic of ignitability. The other phase would not require further treatment unless it still exhibits the ignitability characteristic (assuming the aqueous phase is not hazardous for any other reason). This is because it is a new treatability group. See Section III.F. of the final rule preamble.

Comment Number: 2 - B - 11
Docket Number: LD12 - 00195
Commenter: Covington + Burling (OCF)
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

III. U.S. EPA Should Not Establish Mandatory Treatment Methods For Handling D001 Ignitable Liquids

U.S. EPA is proposing the incineration, fuel substitution, or recovery methods of treatment as the BDAT treatment standards for D001 ignitable liquids. 54 Fed. Reg. at 48422. Although these three methods of treatment do remove the ignitability characteristic, so do other methods of treatment, such as solidification of ignitable liquids by polymerization. As discussed at length in Part I, above, U.S. EPA has no authority to require treatment levels or methods for characteristic wastes beyond that which are necessary to remove the characteristic. In the case of ignitable wastes, any treatment that removes the characteristic of ignitability should be considered BDAT.

U.S. EPA believes that there is too large a universe of constituents in D001 wastes to establish numerical standards. BDAT Background Document for D001, D002, D003, and D004 Wastes, F89-LD12-S1031 (1989) (hereinafter D001 Background Document). However, the numerical performance standard need not be based on the constituents of a waste; for ignitable wastes it could and should be based on the flash point or some other measure of ignitability.

At the present time, U.S. EPA regulations require treatment, rendering, or mixing of ignitable wastes until they no longer exhibit the characteristic of ignitability. 40 C.F.R. SS 264.229, 264.256, 264.281 and 264.312. These regulations should remain in effect and should govern the treatment of ignitable liquids for the purposes of the RCRA Section 3004(m). In establishing methods of treatment as treatment standards for ignitable liquids, U.S. EPA has expressed a concern that if it did not do so, generators would simply dilute these liquids until they were no longer ignitable. 54 Fed. Reg. at 48422. The Agency is opposed to dilution on the ground that VOCs would continue to be emitted from the diluted liquids. Id. This may be true of dilution, but is not true of treatment involving solidification by polymerization in enclosed containers. If U.S. EPA feels that it must establish a treatment method to prevent simple dilution of these wastes, it should not exclude solidification as a method of treatment.

Comment Number: 2-B-11 (continued)
Docket Number: LD12-00195
Commenter: Covington + Burling (OCF)
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

In the background document for D001 wastes, U.S. EPA identifies only three applicable technologies for the treatment of D001 ignitable liquids: incineration, fuel substitution, and recovery. D001 Background Document at 1-9. The Agency then proposed all three of these treatment technologies as BDAT. The Agency appears to have acted on the belief that these methods of treatment are already used to treat almost all D001 ignitable liquids. The D001 Background Document cites data indicating that 26 percent of D001 ignitable liquids are treated by incineration, 25 percent are used as a fuel substitute, and 24 percent are recovered. Id. Apparently, the Agency is not aware that companies, including OCF, treat resins that meet the definition of ignitable liquids in so-called 90-day containers by solidification through polymerization and dispose of these containers of solidified resins in landfills. U.S. EPA could monitor this treatment through the waste analysis plans that the Agency proposes to require from 90-day treaters. 54 Fed. Reg. at 48498. Thus, the Agency should not use a lack of data as an excuse to foreclose the use of solidification as a method of treating ignitable liquids.

If the Agency refuses to allow solidification as a method of treatment for ignitable liquids, it should adopt its proposed national capacity variance for such wastes with a viscosity of greater than 2.500 centipoise. See 54 Fed. Reg. at 48479. At the present time, companies that solidify resins will need time to identify or develop alternative treatment facilities.

COMMENT NUMBER: 2-B-11
DOCKET NUMBER: LD12-00195
COMMENTER: Covington and Burling.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

The Agency agrees with the commenter that there are aqueous D001 ignitable liquid wastes with low BTU contents that can be effectively treated with technologies other than incineration, fuel substitution or recovery. As a result of this determination, EPA has divided the D001 Ignitable Liquids Subcategory into three treatability groups as follows: (1) D001 Ignitable Liquids High TOC Nonwastewaters that are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 10 percent total organic carbon (TOC) as generated, (2) D001 Ignitable Liquids Low TOC Nonwastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain greater than or equal to 1 percent TOC but less than 10 percent TOC, as generated, and (3) D001 Ignitable Liquids Wastewaters which are defined as wastes that exhibit properties listed in 261.21(a)(1) and contain less than 1 percent TOC and less than 1 percent TSS as generated.

EPA is promulgating the proposed treatment standard of "Incineration (INCIN), Fuel Substitution (FSUBS), or Recovery (RORGS) as a Method of Treatment" for the D001 Ignitable Liquids High TOC Nonwastewaters subcategory. See 40 CFR Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code. EPA believes that it is appropriate to require that that these wastes be treated by some type of destruction or recovery technology given that they often contain high concentrations of toxic organic constituents that provide the ignitability characteristic to the waste.

COMMENT NUMBER: 2-B-11 (continued)
DOCKET NUMBER: LD12-00195
COMMENTER: Covington and Burling.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory
RESPONSE:

Wastes in the Ignitable Liquids low TOC Nonwastewater Subcategory and wastes in the Ignitable Liquids Wastewater Subcategory typically contain high water concentrations, low organic concentration and consequently have low BTU values. The Agency believes that some of these wastes can be effectively treated (i.e., remove the characteristic of ignitability by either destroying or recovering the organic constituents that gave the waste its ignitable character) using technologies applicable for treatment of aqueous wastes. In some cases, these wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system for aqueous wastes. For instance, wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms. Because of the variety of technologies that may be applicable to wastes in these subcategories, the Agency is allowing the generator or treater to decide which technology is best suited for the waste and is promulgating a treatment standard of "Deactivation (DEACT) to Remove the Characteristic of Ignitability" for the D001 Ignitable Liquids Low TOC Nonwastewaters subcategory and Ignitable Liquids Wastewater Subcategory. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. Solidification may also be used.

Comment Number: 2-13-12
Docket Number: LD12-00143
Commenter: General Motors Corporation
Issue: D001 - CHARACTERISTIC IGNITABLE WASTES
Subissue: OTHER ISSUES CONCERNING TREATMENT
Comment: STANDARDS FOR THE IGNITABLE LIQUIDS SUBCATEGORY

Ignitable Liquids Subcategory

If. treatment to achieve the existing characteristic level (i.e., 140 degrees Fahrenheit) is not adopted, then GM agrees with the proposed treatment standard of "Incineration, Fuel Substitution, or Recovery" for Ignitable liquids (page 48420), and also agrees that distillation should be considered one acceptable method of recovery. We further agree with the Agency's decision to not propose concentration-based D001 treatment standards based on a transfer of F001-F005 data, due to the "unreasonable burden" of the significant amount of testing which would be required.

COMMENT NUMBER: 2-B-12

DOCKET NUMBER: LD12-00143

COMMENTER: General Motors Corporation

ISSUE: D001 - Characteristic Ignitable Wastes

SUBISSUE: Other Issues Concerning the Ignitable Liquids Subcategory

RESPONSE:

EPA appreciates the commenter's support for incineration, fuel substitution or recovery as methods of treatment for D001 ignitable liquids. Technologies such as distillation that recover organic phases for reuse or further treatment are considered to be recovery technologies by EPA. The Agency also appreciates this commenter's support with regard to the unnecessary burden of testing and certification that would be created if numerical treatment standards are developed for D001.

Comment Number: 2-C-1

Docket Number: LD12-00124

Commenter: Rollins

Issue: D001-Characteristic Ignitable Wastes

Subissue: Ignitable Compressed Gases

Comment:

EPA proposes a specified technology for D001 ignitable compressed gases: Incineration of vented ignitable gases.

RES believes that for small volume containers of ignitable compressed gases -- e.g., aerosol cans of 18 oz. or less -- the cans can be fed to the kiln and vented within the kiln itself by the melting of the small cans. The vented gases are then incinerated in the kiln or afterburner. The cans are fed to the kiln at a controlled rate based on the specific kiln.

Accordingly, RES recommends that EPA make clear that such venting/incineration within the kiln for aerosol cans is within the proposed specified treatment technology.

COMMENT NUMBER: 2-C-1
DOCKET NUMBER: LD12-00124
COMMENTER: Rollins
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Standards for Ignitable Compressed Gases
RESPONSE:

The Agency agrees with the commenter that venting followed by incineration within the kiln is an appropriate treatment for wastes in this subcategory. Furthermore, EPA has determined that there are a wide variety of treatment technologies that can remove the characteristic of ignitability for wastes in the D001 Ignitable Compressed Gases Subcategory and is promulgating "Deactivation (DEACT) to remove the characteristic of ignitability" to allow facilities the flexibility to determine the "best" technology based on chemical and physical characteristics of the waste. See also 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

COMMENT NUMBER: 2-C-2

DOCKET NUMBER: LD12-00115

COMMENTER: AQUA-TECH GROCE LABORATORIES

ISSUE: D001-Characteristic Ignitable Wastes

SUBISSUE: Ignitable Compressed Gases

COMMENT:

Under "Detailed Discussion of Today's Proposed Rule" III.A.4.B(2) "Ignitable Compressed Gases", the Agency is considering several options for treatment standards for compressed ignitable gases: The first option was reuse. This is viable within the compressed gas industry, except for cases such as cylinders that have defective valves, lost the identity of the manufacturer, all lecture bottle sizes, and damaged cylinders. In any of these four cases, the cylinders must instead be treated. At our Greer, South Carolina facility, we have used several methods to treat ignitable gases.

The most prevalent treatment method is to feed the ignitable gas into a furance as a fuel source. This practice reminds us of the similar use in secondary fuels. Energy generated is used to smelt various recoverable metals or to oxide other metals (Na) in a two step process to generate sodium hydroxide. Typical compressed gases we have encountered include the following: propane, methane, butane, hydrogen, ethane, and acetylene.

We request these proposed rules reflect an additional option besides incineration to utilize the waste compressed gases as a source of secondary fuel at a RCRA TSDF.

A less than common class of gases in this subcategory not addressed by these proposed rules are the pyrophorics. These gases, because of their air reactive characteristics, cannot be vented into an incinerator without considerable risk. Our method of treatment has been by remote control penetration and detonation under a column of appropriate scrubbing solution.

We request this method of treatment be incorporated into these proposed rules for treatment of ignitable gases. Typical gases in this class are: tributyl aluminum, dimethylzine, triethylborane, and tetramethyltin.

Another method of treatment to deactivate the ignitable characteristic in some compressed gases is to oxide them in an aqueous medium. Carbonyl sulfide and methyl mercaptans are efficiently treated by oxidation. We request this method of treatment be included in treatment options for ingitable gases.

COMMENT NUMBER: 2-C-2
DOCKET NUMBER: LD12-00115
COMMENTER: AQUA-TECH GRACE LABORATORIES
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Standards for Ignitable Compressed Gases
RESPONSE:

The Agency agrees with the commenter that fuel substitution, venting by detonation under a column of appropriate scrubbing solution, and chemical oxidation are all appropriate treatments for wastes in this subcategory. Furthermore, EPA has determined that there are a wide variety of treatment technologies that can remove the characteristic of ignitability for wastes in the D001 Ignitable Compressed Gases Subcategory and is promulgating "Deactivation (DEACT) to remove the characteristic of ignitability" to allow facilities the flexibility to determine the "best" technology based on chemical and physical characteristics of the waste. See also 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-C-3

Docket Number: LD12-00179

Commenter: Dow Chemical

Issue: D001 - Characteristic Ignitable Wastes

Subissue: Ignitable Compressed Gases

Comment:

XXI. EPA SHOULD ALLOW IGNITABLE COMPRESSED GASES TO BE BURNED IN INDUSTRIAL FURNACES AND BOILERS, AS WELL AS INCINERATORS.

54 Fed. Reg. 48,407, 48,421

EPA has proposed a treatment standard for ignitable compressed gases that would require such wastes to be recovered or burned by venting the gases into an incinerator. The Agency stated that it is "not proposing to specify fuel substitution as a[n alternative] method because it knows too little about these wastes." 54 Fed. Reg. 48,421. Dow urges EPA to allow ignitable compressed gases to be burned in industrial boilers and furnaces, as well as in incinerators.

As discussed in Comment XII, (pages 10 - 12) more fully above, EPA should always allow fuel substitution as an alternative to incineration because, as even the Agency acknowledges, the two technologies are "equally effective" in destroying and removing hazardous constituents. 52 Fed. Reg. 17,021 (May 6, 1987). Fuel substitution is particularly appropriate as an alternative in the case of ignitable compressed gases. Dow currently uses fuel substitution as a method of treating several ignitable gases. A single Dow facility currently burns over 5 million pounds of ignitable gases, with a BTU value of over 10,000 BTU per pound. The boilers and industrial furnaces routinely achieve destruction and removal efficiencies for these compounds that are comparable to what would be required in a hazardous waste incinerator.

COMMENT NUMBER: 2-C-3
DOCKET NUMBER: LD12-00179
COMMENTER: DOW CHEMICAL
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Treatment Standards for Ignitable Compressed Gases
RESPONSE:

The Agency agrees with the commenter that fuel substitution by incineration within the kiln is an appropriate treatment for wastes in this subcategory. Furthermore, EPA has determined that there are a wide variety of treatment technologies that can remove the characteristic of ignitability for wastes in the D001 Ignitable Compressed Gases Subcategory and is promulgating "Deactivation (DEACT) to remove the characteristic of ignitability" to allow facilities the flexibility to determine the "best" technology based on chemical and physical characteristics of the waste. See also 40 CFR Section 268 Appendix VI for a list of other applicable technologies that used alone or in combination can achieve this technology standard.

Comment Number: 2-D-1
Docket Number: LD12-00187
Commenter: CMA
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues Concerning Deactivation
Comment: Treatment Standards

4. **Recovery Should Be Allowed As A Treatment Standard For D001 Ignitable Reactives And D003 Reactive Sulfides.**

EPA proposes alkaline chlorination, chemical oxidation, or incineration followed by precipitation to insoluble sulfates as methods of treatment for D003 reactive sulfides. See 54 Fed. Reg. at 48,426/3. EPA also proposes deactivation as a method of treatment for D001 ignitible reactives. Id. at 48,422/2. Spent catalysts in these two categories of waste are commonly recovered and recovery should be an acceptable treatment method.

Specifically, spent refinery catalysts are generated on a sporadic basis but in high volumes. They may be classified as D003 reactive sulfides, D001 ignitable reactives, or neither, depending on the differences in reactor design of the refinery as well as crude oil constituent make-up.

Comment Number: 2-D-1 (continued)
Docket Number: LD12-00187
Commenter: CMA
Issue: D001- Characteristic Ignitable Wastes
Subissue:
Comment: Issues Concerning Deactivation
Treatment Standards

EPA should also clarify that recovery can be used to achieve deactivation -- the proposed treatment standard for D001 ignitible reactives. As noted above, spent catalyst wastes are deactivated by recovery. Therefore, the Panel urges EPA to clarify that recovery is an acceptable means of deactivation.

EPA should revise and clarify the proposed treatment standards for P119 and P120 nonwastewaters, D001 ignitable reactives, and D003 reactive sulfides to allow all forms of currently used and demonstrated recovery of these wastes. This will promote beneficial recycling of these valuable metal constituents.

Comment Number: 2-D-1 (continued)
Docket Number: LD12-00187
Commenter: CMA
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues Concerning Deactivation Treatment Standards
Comment:

The majority of spent refinery catalysts are recycled to recover molybdenum or vanadium compounds. A by-product containing alumina, cobalt, and nickel is generated. This by-product is further processed to recover the cobalt and nickel values, and an alumina slag results which is useable as construction material for roadbed or concrete aggregate. The recovery process utilizes pyrometallurgical as well as hydro-metallurgical chemical processing to recover the metals molybdenum and vanadium while producing the impure alumina by-product. The pyrometallurgical process completely oxidizes the metals and sulfur compounds thus completely eliminating the characteristic of ignitibility.

COMMENT NUMBER: 2-D-1
DOCKET NUMBER: LD12-00187
COMMENTER: CMA
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that recovery is an applicable deactivation technology for D001 ignitable reactives and D003 reactive sulfides. In addition, the Agency encourages recovery technologies when ever possible. See 40 CFR Section 268 Appendix VI for a list of additional technologies that can achieve the "deactivation" standards.

Comment Number: 2 - D - 2
Docket Number: LD12 -00179
Commenter: Dow Chemical
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

XXV. DOW AGREES THAT DEACTIVATION IS AN APPROPRIATE TREATMENT TECHNOLOGY FOR D001 OXIDIZERS AND D003 REACTIVE WASTES

54 Fed. Reg. 48,421, column 3

The Agency has proposed deactivation as an appropriate treatment technology for D001 oxidizers and D003 reactive wastes. Dow agrees that deactivation as a method of treatment is appropriate for these wastes. Generators may have different deactivation capabilities and should not be precluded from using one over another. Large facilities, such as those operated by The Dow Chemical Company, have their own TS&D facilities, including incineration, and can deactivate D001 oxidizers or D003 reactives, which are generated sporadically and in small quantities, effectively and safely using thermal destruction. Thermal destruction of these wastes, such as peroxides, perchlorates, hydrides, azides and permanganates completely removes the hazardous characteristic with no exposure to human health or the environment.

COMMENT NUMBER: 2-D-2
DOCKET NUMBER: LD12-00179
COMMENTER: DOW CHEMICAL
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency acknowledges and thanks this commenter for the support of deactivation as a treatment standard for D001-oxidizers. The Agency believes that because of the diversity of waste streams and treatment technologies applicable to D001-oxidizer wastes, a treatment standard of deactivation is best. The Agency also believes that it is important that the deactivation technology used is capable of treating the waste to the characteristic level. Therefore, the Agency is promulgating a treatment standard of "Deactivation to Remove the Characteristic of Ignitability" for D001-oxidizers and "deactivation to remove the characteristic of reactivity" for D003-reactives. This standard will allow generators and treaters the needed flexibility to select the technology that is best suited to remove the hazardous characteristic of the waste. The Agency agrees with the commenter that incineration is applicable for treatment of D001 oxidizers and some D003 reactives. A list of additional technologies that when used alone or in combination can achieve the treatment standard for D001-oxidizers and some subcategories of D003 reactives is included in 40 CFR 268 Appendix VI.

Comment Number: 2 - D - 3
Docket Number: L012 - 00168
Commenter: American Petroleum Institute
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

API agrees that the proposed "Deactivation as a method of treatment" standard should provide the generator and treater with the maximum flexibility to chose a protective treatment. EPA has listed a number of technologies that may be utilized in treating these types of wastes. However, assuming that the proposed standard applies to solid and semi-solid ignitable wastes, the following technologies should also be included as potential treatment methods.

- wet air oxidation;
- controlled oxidation; and
- thermal distillation or drying.

API agrees that the proper method of deactivation will be best determined by the generator or treater since they are most knowledgeable as to the waste's unique hazards and handling requirements. Therefore, API believes that EPA should not limit the deactivation standard to a specific list of technologies.

COMMENT NUMBER: 2-D-3
DOCKET NUMBER: LD12-00168
COMMENTER: AMERICAN PETROLEUM INSTITUTE
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency acknowledges and thanks this commenter for the support of deactivation as a treatment standard for D001-ignitable wastes. The Agency believes that because of the diversity of waste streams and treatment technologies (such as the ones described by this commenter) applicable to ignitable wastes, a treatment standard of deactivation is best. The Agency also believes that it is important that the deactivation technology used is capable of treating the waste to the characteristic level. Therefore, the Agency is promulgating a treatment standard of "Deactivation to Remove the Characteristic of Ignitability" for some ignitable waste subcategories. This standard will allow generators and treaters the needed flexibility to select the technology that is best suited to remove the hazardous characteristic of the waste. A list of additional technologies that when used alone or in combination can achieve the 'deactivation" treatment standard is included in 40 CFR 268 Appendix VI.

Comment Number: 2-D-4

Docket Number: LD12-00206..

Commenter: University of Washington

Issue: D001: Characteristic Ignitable Wastes

Subissue: Issues concerning deactivation
Comment: treatment standards

2. Definition of deactivation and verification of complete treatment. We support the general concept of specifying "deactivation as a method" for a treatment standard for certain D001, D002 and D003 categories of waste. However, we foresee certain problems with this method related to the vagueness of the term. For example, in the case of a D001 oxidizer, one form of deactivation would be chemical reduction. By what criteria will facilities determine when the waste is adequately reduced (i.e. deactivated)? The same problem holds true for D003 explosives, water reactives, and other reactives.

COMMENT NUMBER: 2-D-4
DOCKET NUMBER: LD12-00206
COMMENTER: UNIVERSITY OF WASHINGTON
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that guidance should be given to help the regulated community understand what is meant by "deactivation." In the case of an oxidizer, if the waste is treated so that it produces a treated waste residual that is no longer capable of yielding oxygen and stimulgating combustion, then the material no longer exhibits the characteristic of ignitibility and hence no longer meets the definition of a D001 oxidizer. The Agency suggests using a surrogate to determine when the chemical reduction process is complete.

EPA has developed a list of applicable technologies for each subcategory where "deactivation" is the promulgated standard. See 40 CFR Section 268 Appendix VI for a list of technologies that can achieve the "deactivation" standard.

Comment Number: 2 - D - 5
Docket Number: LD12 - 00255
Commenter: Ensign - Bickford Industries, Inc
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Gentlemen:

This letter is written to comment on your proposed rule for Land Disposal Restrictions for Third Scheduled Wastes. My concern is with the proposed treatment standards for ignitable, corrosive, and reactive wastes and specifically reactive characteristic wastes.

I am in support of the Deactivation Treatment Standard and agree with EPA's statement that

> ... the actual method of "Deactivation" chosen for each waste may be best determined by the generator or the treater most knowledgeable as to the waste's unique hazards and handling.

This is a reasonable approach and recognizes that the industry's primary safety concern is to render these materials non-reactive. It also recognizes that flexibility is needed in that one method of treatment is not appropriate for all wastes.

I am concerned, however, that "open burning" is conspicuous by its absence in the language of the preamble. In the preamble, examples of deactivation are given several times such as:

> ...deactivation (e.g. open detonation, thermal destruction, specialized incineration, chemical oxidation, chemical reduction, and controlled reaction with water).

and,

> ... the Agency is allowing the regulated community to use the treatment technology (e.g. incineration, chemical deactivation) that best fits the type of explosive waste.

It is not clear anywhere that open burning is an option, although "thermal destruction" may be interpreted to mean or include open burning.

Comment Number: 2-D-5 (cont.)
Docket Number: LD12-00255
Commenter: Ensign-Bickford Industries, Inc.
Issue: D001: Characteristic Ignitable Wastes
Subissue:
Comment: Issues Concerning Deactivation Treatment Standard

The commercial explosives industry uses open burning (this is acknowledged in the preamble) and open detonation as the primary methods for safely treating explosives and explosives contaminated wastes, yet open burning is not specifically acknowledged as a "deactivation" method. Open burning will still be a necessary treatment method for some time. In order to preclude any misunderstandings, the language of the preamble should be changed or clarified to specifically designate open burning as an option for deactivation.

COMMENT NUMBER: 2-D-5
DOCKET NUMBER: LD12-00255
COMMENTER: Ensign-Brickford Industries, Inc.
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA appreciates the commenter support for the "deactivation" treatment standard. The Agency has promulgated "deactivation to remove the characteristic" as a treatment standard for some subcategories to render them nonreactive, noncorrosive and nonignitable according to regulatory definitions. Although open burning and open detonation technologies can be used to deactivate, EPA recommends that they be used only in situations that pose an imminent, substantial threat of discharge where wastes consequently cannot be transported or treated otherwise in a safe manner. EPA believes that in come cases it may be desirable and appropriate for a waste to be mixed with water to reduce the potential for explosion and thus, to ensure safe handling and/or transporation for subsequent incineration or chemical treatment. If the waste material can be safely transported according to DOT requirements and accepted by a treatment facility, the Agency recommends that technologies such as incineration, chemical oxidation or chemical reduction should be used to remove the characteristic of ignitability and/or reactivity. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. See also Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code.

Comment Number: 2-D-6
Docket Number: LD12-00235
Commenter: Explosive Technologies International
Issue: D001: Characteristic Ignitable Wastes
Subissue: Issues concerning deactivation treatment standards
Comment:

1. Deactivation as a Treatment Standard

The Agency has proposed a general treatment standard of "Deactivitation as a Method of Treatment" for two subcategories of characteristic waste which are associated with manufacturing and handling of commercial explosives (D001 Oxidizers and D003 Explosives). The Agency has appropriately stated a significant reality associated with these type waste and I quote "The Agency has determined that within each of these subcategories there appear to be a further variety of different waste groups, each with a certain degree of uniqueness with respect to hazard and handling requirements." We are in total agreement with the Agency's conclusion that, "... the actual method of 'Deactivation' chosen for each waste may be specific to that waste and may be best determined by the generator or the treater most knowledgeable as to the waste's unique hazards and handling requirements."

We are also in agreement with the Agency's conclusion that "the hazardous characteristic of these wastes is based upon the imminent hazard (i.e., oxidizers can react violently with organics or other materials and result in the rapid generation of fires, explosivity)".

Based upon the above data, we recommend that for these wastes (D001 Oxidizers and D003 Explosives) a "noncharacteristic" based treatment standard be established instead of a "technology" based treatment standard. This type of "performance" regulation focuses on the desired objective (the elimination of imminent hazardous characteristic of the waste) rather than focusing upon the process for reaching the objective. Management of a regulation which focuses upon the process will be a significant task, for both the Agency and the generator or treater with little or no benefit to the environment. Possibly you would want to use the specific titles of "Nonoxidizable" and "Nonreactive" for the treatment standards for these wastes.

COMMENT NUMBER: 2-D-6
DOCKET NUMBER: LD12-00235
COMMENTER: EXPLOSIVE TECHNOLOGIES INTERNATIONAL
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA appreciates the commenter support for the "deactivation" standard. The Agency has promulgated "deactivation to remove the characteristic" as a treatment standard for some subcategories to render them nonreactive, noncorrosive and nonignitable according to regulatory definitions. Although open burning and open detonation technologies can be used to deactivate, EPA recommends that they be used only in situations that pose an imminent, substantial threat of discharge where wastes consequently cannot be transported or treated otherwise in a safe manner. EPA believes that in come cases it may be desirable and appropriate for a waste to be mixed with water to reduce the potential for explosion and thus, to ensure safe handling and/or transporation for subsequent incineration or chemical treatment. If the waste material can be safely transported according to DOT requirements and accepted by a treatment facility, the Agency recommends that technologies such as incineration, chemical oxidation or chemical reduction should be used to remove the characteristic of ignitability and/or reactivity. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. See also Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code.

Comment Number: 2 - D - 7
Docket Number: LD10 - 00031
Commenter: Hazardous Waste Treatment Council
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

For D001 waste in the ignitable inorganic solids subcategory, such as sodium metal, or phosphorus, the HWTC agrees with EPA that deactivation is appropriate to specify as a method for the treatment standard. The same standard is appropriate for the inorganic oxidizers subcategory, for waste such as peroxides, perchlorates and permanganates. Deactivation should be specified as the method.

The HWTC urges EPA to provide examples of appropriate deactivation methods for the ignitable inorganics and oxides categories. Some examples are needed to discourage improper or unsafe deactivation methods. For organic oxidizers, incineration or thermal oxidation is the only available method for deactivation. Thermal oxidation must, therefore, be included as an example of deactivation.

COMMENT NUMBER: 2-D-7
DOCKET NUMBER: LD12-00031
COMMENTER: Hazardous Waste Treatment Council
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency acknowledges and thanks this commenter for the support of deactivation as a treatment standard for D001-oxidizers. The Agency believes that because of the diversity of waste streams and treatment technologies applicable to D001-ignitable reactive and D001-oxidizer wastes, a treatment standard of deactivation is best. The Agency also believes that it is important that the deactivation technology used is capable of treating the waste to the characteristic level. Therefore, the Agency is promulgating a treatment standard of "Deactivation to Remove the Characteristic of Ignitability" for D001-oxidizers and D001 ignitable reactives. This standard will allow generators and treaters the needed flexibility to select the technology that is best suited to remove the hazardous characteristic of the waste. The Agency agrees with the commenter that incineration is applicable for treatment of D001 oxidizers and ignitable reactives. A list of additional technologies that when used alone or in combination can achieve the treatment standard for D001-oxidizers is included in 40 CFR 268 Appendix VI.

Comment Number: 2-D-8
Docket Number: LD12-0.0267
Commenter: Allied Signal, Inc.
Issue: D001: Characteristic Ignitable Wastes
Subissue: Issues Concerning Deactivation Treatment Standards
Comment:

VIII. Deactivation is an Appropriate Treatment Standard for Those D001, D002, and D003 Wastes for Which It Has Been Proposed

EPA has proposed "deactivation as a method of treatment" for several subcategories of D001, D002, and D003 wastes. As we understand it, "deactivation" refers to any treatment that removes the characteristic. *See* 54 *Fed. Reg.* 48419. Examples of "deactivation" include open detonation, thermal destruction, specialized incineration, chemical oxidation, chemical reduction, and controlled reaction with water. *Id.* This list, however, is illustrative only because "the Agency believes that the actual method of "deactivation" chosen for each waste may be specific to that waste and may be best determined by the generator or the treater most knowledgeable as to the waste's unique hazards and handling requirements." *Id.*

Comment Number: 2-D-8 (continued)
Docket Number: LD12-00267.
Commenter: Allied Signal, Inc.
Issue: D001: Characteristic Ignitable Wastes
Subissue:
Comment: Issues concerning deactivation treatment standards

Allied completely agrees with EPA's premise. The wastes involved are dangerous wastes that present direct and immediate threats to the safety of the generator's employees. The generator must be given the flexibility to determine the best methods of handling and treating these wastes so as to minimize the dangers they pose to the employees. The requirement of "deactivation" will assure that these wastes are accorded genuine treatment that destroys the hazardous characteristic, while maintaining the generator's maximum flexibility to deal with the vagaries of the particular substance involved, in a way presenting the least danger to the generator's employees at the particular facility and treatment facility involved.[*]

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[*] We believe that this proposed treatment method should be the equivalent of "no land disposal," but that, in light of other aspects of the preamble, it is not. The concerns of some commenters to previous land disposal restriction rules over the effect of a "no land disposal" treatment standard, *id.*, should not be relevant to characteristic wastes, because once the characteristic waste loses its characteristic it ceases to be a hazardous waste. However, in light of the legally erroneous interpretation of Section 3004(m) announced in the preamble, such that a characteristic waste "destined" for land disposal would become subject to the treatment standard at the point of generation and would remain subject to the treatment standard even after ceasing to be a hazardous waste, a "no land disposal" treatment standard would be a totally inappropriate standard. It would preclude any land disposal of the harmless residue of any of the various deactivation methods that might be applicable to the particular waste.

Comment Number: 2-D-8 (continued)
Docket Number: LD12-00267.
Commenter: Allied Signal, Inc.
Issue: D001: Characteristic Ignitable Wastes
Subissue: Issues concerning deactivation treatment standards
Comment:

The option of specifying one technology, such as open detonation, for all of these wastes would be a serious mistake. It would impose a serious burden on EPA through the variance procedure, and, more important, it would create substantial regulatory uncertainty until EPA could deal with the variances. Further, this regulatory uncertainty could lead some generators to attempt to utilize the specified technology, even if inappropriate, with potentially very serious consequences to safety. Generators should not be confronted with a choice between compliance with EPA's regulations, on the one hand, and the safety of their employees, on the other.

For example, if the treatment standards required open detonation for "other reactive" wastes, then Allied would be forced to choose between complying with this treatment method for its chlorosilane wastes generated at its Delaware Valley Works, or continuing its much safer existing practice of sending these wastes to an incinerator in specially packaged one-gallon glass containers. The availability of a treatability variance to resolve issues like this is inadequate for two reasons: First, EPA is unlikely to be able to review and act on all such variance requests by the May 8, 1990 effective date of the treatment standard, and, therefore, for some uncertain period of time, Allied would be confronted with this unfair choice between complying with regulatory requirements, on the one hand, and taking those actions most protective of the safety of its employees. Second, some companies other than Allied could well decide that the costs and burdens of seeking such a variance are not worth the effort, even if it means that the safety of their employees would be adversely affected. This would be an intolerable situation, but entirely predictable. EPA must not create disincentives for companies to protect their employees.

COMMENT NUMBER: 2-D-8

DOCKET NUMBER: LD12-00267

COMMENTER: ALLIED SIGNAL, INC.

ISSUE: D001-Characteristic Ignitable Wastes

SUBISSUE: Issues Concerning Deactivation Treatment Standards

RESPONSE:

The Agency appreciates the commenter's support concerning the "deactivation" standards. EPA agrees with the commenter that specifying technologies would create a serious burden on EPA through the variance procedure and may cause some generators to utilize an inappropriate technology for their waste to avoid the variance procedure. Consequently, EPA has promulgated "Deactivation to Remove the Characteristic" for most characteristic waste subcategories. A list of recommended deactivation technologies that can achieve the standard is located in 40 CFR Section 268 Appendix VI.

Comment Number: 2 - D - 9
Docket Number: LD12 - 00081
Commenter: ENVIROSAFE MANAGEMENT SERVICES, INC
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

The Agency has proposed a treatment standard of deactivation for certain characteristic wastes. In the case of oxidizers, treatment is to be done until the waste is deactivated, however, there is no definition or guidance on what is meant by deactivation. The Agency needs to clearly define at what point deactivation occurs.

This is especially true when on Page 48421, EPA makes a statement that technologies exist that can completely remove a characteristic.

For the D001 ignitable reactives subcategory and oxidizers subcategory, the question is raised as to whether or not stabilizatio could be a viable treatment to isolate these wastes to achieve the deactivation called for in th proposed standards. EPA should address whether or not deactivation because of isolation physical encapsulation or stabilization is appropriate.

COMMENT NUMBER: 2-D-9
DOCKET NUMBER: LD12-00081
COMMENTER: Envirosafe Management Services, Inc.
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that guidance should be given to help the regulated community understand what is meant by "deactivation". In the case of an oxidizer, if the waste is treated so that it produces a treated waste residual that is no longer capable of yielding oxygen and stimulating combustion, then the material no longer exhibits the characteristic of ignitibility and hence no longer meets the definition of a D001 oxidizer.

EPA has developed a list of applicable technologies for each subcategory where "deactivation" is the promulgated standard. See 40 CFR Section 268 Appendix VI for a list of technologies that can achieve the "deactivation" standard. EPA does not believe that isolation, physical encapsulation or stabilization are appropriate technologies for the oxidizer subcategory. The Agency prefers technologies that destroy the oxidizing constituents such as chemical reduction or incineration, thereby completely removing the characteristic of ignitability. It should be mentioned that these oxidizer wastes may make useful reagents for chemical treatment processes that require oxidation reactions.

Comment Number: 2 - D - 10
Docket Number: LD12 - 00129
Commenter: Olin Chemical
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Deactivation as a Treatment Standard (III.A.4.a.(3))

The Agency has proposed a standard of "Deactivation as a Method of Treatment" for several subcategories of D001, D002 and D003 wastes which provides the needed flexibility in choice of treatment technology for the anticipated uniqueness of these wastes at specific sites, while at the same time allowing safe handling procedures for the waste because of its overall "reactive" nature. Olin concurs with USEPA in its belief that this is an appropriate approach for these wastes since the hazardous characteristic is based on imminent hazard (e.g., violent reactions and ignition) rather than on other criteria such as levels of hazardous constituents.

Oxidizers Subcategory (III.A.4.b.(4))

Olin generates two waste streams that fit into this category. They are both off-spec or contaminated swimming pool chlorination chemicals. HTH® (calcium hypochlorite) and Pace® (trichlorocyanuric acid) are DOT oxidizers based upon an available chlorine content greater than 39%. Hence, if the material becomes a waste it will fit into the D001 Oxidizer subcategory (40 CFR 261.21(a)(4)). The waste is normally generated as a solid and routinely disposed of through deactivation by adding the material to large quantities of water (similar to its use in swimming pools). Following the deactivation, the waste is further treated in a wastewater treatment facility and discharged either through NPDES permit (or state equivalent) or to a POTW. Depending on the POTW's requirement, the available chlorine level can be adjusted. During deactivation and treatment, there is no release of chlorine gas.

Comment Number: 2 - D - 10 (Continued)
Docket Number: LD12 - 00129
Commenter: Olin Chemicals
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

In addition, the DOT lists both Hydrogen Peroxide and Nitric Acid as oxidizers. The standard treatment for these chemicals is dissolution in water followed by neutralization. In the case of nitric acid, the diluting in water is needed to prevent an adverse reaction.

Olin concurs with USEPA that the proposed treatment standard of "Deactivation as a Method of Treatment" is appropriate for wastes in the D001 Oxidizers Subcategory.

COMMENT NUMBER: 2-D-10
DOCKET NUMBER: LD12-00129
COMMENTER: Olin Chemicals
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency acknowledges and thanks this commenter for the support of deactivation as a treatment standard for D001-oxidizers. The Agency believes that because of the diversity of waste streams and treatment technologies (such as the ones described by this commenter) applicable to D001-oxidizer wastes, a treatment standard of deactivation is best. The Agency also believes that it is important that the deactivation technology used is capable of treating the waste to the characteristic level. Therefore, the Agency is promulgating a treatment standard of "Deactivation to Remove the Characteristic of Ignitability" for D001-oxidizers. This standard will allow generators and treaters the needed flexibility to select the technology that is best suited to remove the hazardous characteristic of the waste. The Agency agrees with the commenter that the chemical reduction and neutralization technologies described are applicable for treatment of D001 oxidizers. The Agency believes that dissolution in water prior to these chemical treatments is acceptable since this step facilitates the treatment process. A list of additional technologies that when used alone or in combination can achieve the treatment standard for D001-oxidizers is included in 40 CFR 268 Appendix VI.

Comment Number: 2 - D - 11
Docket Number: L012 - 00124
Commenter: Rollins
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

DEACTIVATION AS A TREATMENT TECHNOLOGY

EPA raises the issue (Preamble, p. 48419-20) as to whether "Deactivation" is an appropriate required treatment technology for certain characteristic wastes, or whether a series of technologies should be spelled out -- e.g., "thermal destruction, specialized incineration ...".

We see no problem in using the general term "deactivation", *if* the Preamble to the final regulation makes clear which technologies are included in that term. Otherwise, there may be varying interpretations as to whether or not a particular technology is considered to provide "deactivation" of a given waste.

In this connection, RES does currently incinerate D001 ignitable reactives and D001 oxidizers, two subcategories for which EPA proposes "deactivation". EPA should specify that incineration is an appropriate form of deactivation for these subcategories.

COMMENT NUMBER: 2-D-11
DOCKET NUMBER: LD12-00124
COMMENTER: Rollins
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that guidance should be given to help the regulated community understand what is meant by "deactivation". EPA has developed a list of applicable technologies for each subcategory where "deactivation" is the promulgated standard. See 40 CFR Section 268 Appendix VI for a list of technologies that can achieve the "deactivation" standard (although no technologie are mandated). EPA believes that incineration is an applicable treatment technology for wastes in the D001 Ignitable Reactives Subcategory and the D001 Oxidizers Subcategory.

Comment Number: 2 - D - 12
Docket Number: LD12 - 00143
Commenter: General Motors Corporation
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Deactivation as a Treatment Standard

GM agrees that if deactivation is promulgated as a method of treatment for certain subcategories of D001, D002, and D003 wastes (page 48419), rather than treatment to achieve the existing characteristic levels, the actual method of deactivation for each waste can best be determined by the generator or the treater.

Ignitable Reactives Subcategory

EPA has proposed "Deactivation as a Method of Treatment" for ignitable reactive wastes (page 48421). GM agrees that controlled deactivation of calcium carbide slag with water in specially designed units should continue to be an acceptable method of compliance.

We also recommend that an exemption be established for the use of ignitable reactive wastes stored in limited quantities (maximum of one 55 gallon drum) and used solely for the purpose of emergency fire-fighting training (e.g., magnesium chips generated at one GM plant).

COMMENT NUMBER: 2-D-12
DOCKET NUMBER: LD12-00143
COMMENTER: General Motors Corporation
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency is promulgating "Deactivation to Remove the Characteristic" for the following subcategories: D001-ignitable liquids low TOC nonwastewaters, D001-ignitable liquids wastewaters, D001-ignitable reactives, D001-oxidizers, D002-other corrosives, D003-sulfides, D003-explosives, and D003-water reactives and other D003 reactives. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone on in combination can achieve this standard. Because of the diversity of wastes and applicable treatment technologies, the Agency believes that generators and treaters are best suited to select which treatment technology is best to remove the characteristic of these wastes.

In reference to treatment with controlled deactivation of calcium carbide slag with water, as described by this commenter, EPA considers this is an applicable technology that is capable of removing the ignitable characteristic of waste in the Ignitable Reactive Subcategory.

Comment Number: 2 - D - 13
Docket Number: LD12 - 00126
Commenter: IRECO, INC
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

A. Deactivation and Thermal Destruction as Treatment Methods

Of greatest concern to IRECO are the Agency's proposals for treatment of listed and characteristic explosive and oxidizer wastes. Our primary concern is that a variety of waste treatment methods, including open burning and open detonation, remain available for treatment of these wastes.

We agree with the Agency's statement with respect to the D001 Oxidizers and D003 Explosives, that "there appear to be a further variety of different waste groups [within these groups], each with a certain degree of uniqueness with respect to handling requirements." 54 Fed. Reg. at 48419. IRECO also agrees with the Agency's conclusion that there is no "one particular technology . . . generally applicable to all the wastes within each particular characteristic subcategory, nor . . . is one particular technology . . . 'Best.'" The great variety of commercial explosive wastes and the considerations for employing one or another method of treatment are described in the Institute of Makers of Explosives' (IME's) RCRA Guidance Manual for Permitting Commercial Explosives Industry Open Burning/Open Detonation Units, which the IME will be submitting along with comments on the proposed rules.

The Agency has proposed "deactivation as a method of treatment" for D001 Oxidizers, D003 Explosives, and listed explosives wastes K044, K045 and K047. Additionally, the Agency has proposed "thermal destruction" as a method of treatment for listed waste P081, nitroglycerin. The Agency mentions a number of examples of deactivation, including open detonation, incineration, chemical oxidation and others. We assume that the Agency intended to include open burning even though it is not specifically mentioned. Open burning, rather than open detonation, is probably the most commonly used method of treating explosive waste and we would appreciate clarification of the Agency's intent in this regard.

Comment Number: Z - D - 13 (Continued)
Docket Number: LD12 - 00126
Commenter: IRECO, INC
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

B. Alternative Proposals

The need to have a variety of methods available for disposing of various types of explosive waste is also the reason we are less favorably disposed toward the Agency's alternative proposals for these wastes. For example, the alternative suggested at page 48419, column 3, to 48420, column 1, listing specific treatment technologies as methods of treatment, appears more restrictive. Again, it is not clear that "thermal destruction" is intended to include open burning and open detonation, although we assume from the prior comments that that is the intent of the proposal. Nonetheless, we have a concern that, without clarification, this proposal might be read more restrictively than the Agency intends.

IRECO is adamantly opposed to the second alternative of specifying one technology (e.g., open detonation) for all wastes that could be included in each subcategory. As mentioned above, there is a large variety of explosive wastes, some of which are amenable to one type of treatment such as open detonation, while other types are amenable only to another type of treatment such as open burning. This alternative would not allow the needed flexibility in treatment methods.

In summary, we believe that the Agency's proposal of deactivation as a treatment method is the best of the alternatives proposed. Another alternative the Agency may wish to consider, however, that would serve the same purpose, is to promulgate "nonreactive" as a treatment standard for D003 Explosives and "nonignitable" as a treatment standard for D001 Oxidizers. This proposal would maximize flexibility, while leaving selection of treatment method to the permitting process.

COMMENT NUMBER: 2-D-13
DOCKET NUMBER: LD12-00126
COMMENTER: IRECO INC.
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency agrees with the commenter that one technology cannot be specified to treat all wastes included in each subcategory and appreciates the commenter support for the "deactivation" standard. EPA appreciates the commenter support for the "deactivation" standard. The Agency has promulgated "deactivation to remove the characteristic" as a treatment standard for some subcategories to render them nonreactive, noncorrosive and nonignitable according to regulatory definitions. Although open burning and open detonation technologies can be used to deactivate, EPA recommends that they be used only in situations that pose an imminent, substantial threat of discharge where wastes consequently cannot be transported or treated otherwise in a safe manner. EPA believes that in come cases it may be desirable and appropriate for a waste to be mixed with water to reduce the potential for explosion and thus, to ensure safe handling and/or transporation for subsequent incineration or chemical treatment. If the waste material can be safely transported according to DOT requirements and accepted by a treatment facility, the Agency recommends that technologies such as incineration, chemical oxidation or chemical reduction should be used to remove the characteristic of ignitability and/or reactivity. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. See also Section 268.42 Table 1 for a detailed description of all technologies referred to by a five letter technology code.

Comment Number: 2 - D - 14
Docket Number: LD12 - 00164
Commenter: Institute of Chemical Waste Management
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

DEACTIVATION

The Agency is proposing deactivation as the treatment standard for D001, D002 and D003 waste codes. In addition, the Agency is asking for comment on whether to allow other methods. The Institute previously has taken the position that LDR standards should allow the use of a variety of treatment methods. Therefore, the Institute would support the Agency proposal to specify thermal destruction, incineration, chemical oxidation, chemical reduction, or controlled reaction with water as treatments for these waste codes.

COMMENT NUMBER: 2-D-14
DOCKET NUMBER: LD12-00164
COMMENTER: INSTITUTE OF CHEMICAL WASTE MANAGEMENT
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that incineration, chemical oxidation, chemical reduction and controlled reaction with water are potential deactivation technologies. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve the standard for each subcategory where "deactivation" is the promulgated treatment standard.

Comment Number: 2 - D - 15
Docket Number: LD12 - 00167
Commenter: Westinghouse Electric Corporation
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Ignitable Reactives Subcategory - (54 FR 48421)

Deactivation is the proposed standard for treating wastes in the ignitable reactives subcategory. However, EPA solicited comments as to whether stabilization should be considered as a form of deactivation in the treatment of pyrophoric metal fines and expressed concern that it could be considered impermissible dilution. While stabilization does not necessarily chemically oxidize such materials as deactivation processes might, it is an established technique for safe and equivalent management of such materials and should therefore be included as an alternative treatment standard. It accomplishes the equivalent results as deactivation by isolating and encapsulating the fines and precluding conditions that could cause ignition or reaction of the material. Similarly, it should not be considered impermissible dilution since dilution has nothing to do with eliminating the characteristic.

COMMENT NUMBER: 2-D-15
DOCKET NUMBER: LD12-00167
COMMENTER: WESTINGHOUSE ELECTRIC CORPORATION
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency agrees with the commenter that stabilization is an appropriate technology for removing the characteristic of metal-containing wastes in the ignitable reactives subcategory. See also 40 CFR Section 268 Appendix VI for a list of additional technologies that can achieve the "deactivation" standard for this subcategory.

Comment Number: 2 - D - 16
Docket Number: LD10 - 00007
Commenter: Corning
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Characteristic D001 Wastes in the Oxidizers Subcategory

We agree with EPA's proposal to adopt a land disposal ban for the specific waste examples given. However, there are other substances - such as potassium nitrate (saltpeter) and sodium nitrate (soda niter) - which meet the definition of an oxidizer given at 49 CFR 173.151. We do not believe that a land disposal ban on such other substances is reasonable. These naturally occurring substances are often used as a fertilizer and are suitable for land disposal under controlled conditions.

COMMENT NUMBER: 2-D-16
DOCKET NUMBER: LD10-00007
COMMENTER: CORNING
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA is promulgating "Deactivation to Remove the Characteristic of Ignitability" for wastes in the D001 Oxidizer Subcategory. This standard will allow the treaters the flexability to use the best technology based on physical and chemical characteristics of the waste. Recovery for reuse is an acceptable method of treatment but land disposal is prohibited. See 40 CFR Section 268 Appendix VI for a list of technologies that used alone or in combination can achieve the "deactivation" standard.

Comment Number: 2 - D - 17
Docket Number: LD12 - 00267
Commenter: AlliedSignal, Inc
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

VIII. Deactivation is an Appropriate Treatment Standard for Those D001, D002, and D003 Wastes for Which It Has Been Proposed

EPA has proposed "deactivation as a method of treatment" for several subcategories of D001, D002, and D003 wastes. As we understand it, "deactivation" refers to any treatment that removes the characteristic. *See* 54 *Fed. Reg.* 48419. Examples of "deactivation" include open detonation, thermal destruction, specialized incineration, chemical oxidation, chemical reduction, and controlled reaction with water. *Id.* This list, however, is illustrative only because "the Agency believes that the actual method of "deactivation" chosen for each waste may be specific to that waste and may be best determined by the generator or the treater most knowledgeable as to the waste's unique hazards and handling requirements." *Id.*

Comment Number: 2-D-17 (Continued)
Docket Number: LD12-00267
Commenter: Allied Signal, Inc.
Issue: D001-Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Allied completely agrees with EPA's premise. The wastes involved are dangerous wastes that present direct and immediate threats to the safety of the generator's employees. The generator must be given the flexibility to determine the best methods of handling and treating these wastes so as to minimize the dangers they pose to the employees. The requirement of "deactivation" will assure that these wastes are accorded genuine treatment that destroys the hazardous characteristic, while maintaining the generator's maximum flexibility to deal with the vagaries of the particular substance involved, in a way presenting the least danger to the generator's employees at the particular facility and treatment facility involved.[2]

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[2] We believe that this proposed treatment method should be the equivalent of "no land disposal," but that, in light of other aspects of the preamble, it is not. The concerns of some commenters to previous land disposal restriction rules over the effect of a "no land disposal" treatment standard, *id.*, should not be relevant to characteristic wastes, because once the characteristic waste loses its characteristic it ceases to be a hazardous waste. However, in light of the legally erroneous interpretation of Section 3004(m) announced in the preamble, such that a characteristic waste "destined" for land disposal would become subject to the treatment standard at the point of generation and would remain subject to the treatment standard even after ceasing to be a hazardous waste, a "no land disposal" treatment standard would be a totally inappropriate standard. It would preclude any land disposal of the harmless residue of any of the various deactivation methods that might be applicable to the particular waste.

Comment Number: 2 - D - 17 (con't.)
Docket Number: LD12 - 00267
Commenter: Allied Signal, Inc.
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

The option of specifying one technology, such as open detonation, for all of these wastes would be a serious mistake. It would impose a serious burden on EPA through the variance procedure, and, more important, it would create substantial regulatory uncertainty until EPA could deal with the variances. Further, this regulatory uncertainty could lead some generators to attempt to utilize the specified technology, even if inappropriate, with potentially very serious consequences to safety. Generators should not be confronted with a choice between compliance with EPA's regulations, on the one hand, and the safety of their employees, on the other.

For example, if the treatment standards required open detonation for "other reactive" wastes, then Allied would be forced to choose between complying with this treatment method for its chlorosilane wastes generated at its Delaware Valley Works, or continuing its much safer existing practice of sending these wastes to an incinerator in specially packaged one-gallon glass containers. The availability of a treatability variance to resolve issues like this is inadequate for two reasons: First, EPA is unlikely to be able to review and act on all such variance requests by the May 8, 1990 effective date of the treatment standard, and, therefore, for some uncertain period of time, Allied would be confronted with this unfair choice between complying with regulatory requirements, on the one hand, and taking those actions most protective of the safety of its employees. Second, some companies other than Allied could well decide that the costs and burdens of seeking such a variance are not worth the effort, even if it means that the safety of their employees would be adversely affected. This would be an intolerable situation, but entirely predictable. EPA must not create disincentives for companies to protect their employees.

COMMENT NUMBER: 2-D-17
DOCKET NUMBER: LD12-00267
COMMENTER: Allied Signal, Inc.
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency agrees with the commenter that one technology cannot be specified to treat all wastes included in each subcategory and appreciates the commenter support for the "deactivation" standard. The Agency has promulgated "deactivation to remove the characteristic" as a treatment standard for some subcategories to render them nonreactive, noncorrosive and nonignitable according to regulatory definitions.

EPA recommends that open burning or open detonation technologies be used in situations that pose an imminent, substantial threat of discharge and, consequently, can not be transported or treated in a safe manner. EPA believes that in some cases it may be desirable and recommended that a waste be mixed with water to reduce the potential for explosion and thus, ensure safe handling and/or transportation for subsequent incineration or chemical treatment. If the waste or material can be safely transported according to DOT requirements and can be treated or accepted by a treatment facility, the Agency believes that technologies such as incineration, chemical oxidation or chemical reduction should be used to remove the characteristic of ignitability and/or reactivity. See 40 CFR Section 268 Appendix VI for a list of applicable technologies that used alone or in combination can achieve this technology standard. See also Section 268.42, Table 1 for a detailed description of all technologies referred to by a five letter technology code.

Comment Number: 2 - D - 18
Docket Number: LD12 - 00194
Commenter: Rohm and Haas
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

11. Deactivation Is An Appropriate Treatment Standard For Many Of The D001, D002 And D003 Wastes.

EPA proposes to establish a treatment standard of deactivation as a method of treatment for D001 ignitable reactives, D001 oxidizers, D002 other corrosives, D003 explosives, D003 water reactives, and D003 other reactives. See 54 Fed. Reg. at 48,419/3. R and H supports this proposed treatment standard.

There is a wide variety of wastes in these groups and many have unique treatment requirements. New research and development wastes also will sometimes be included in these waste groups. If not treated properly, these wastes can be very dangerous. It is important to have the flexibility to use a treatment method that is best suited for deactivating the particular waste. Therefore, we strongly support the Agency's proposal to make deactivation the treatment method for the above-noted wastes, and as discussed earlier, deactivation should also be the treatment standard for D003 wastewaters from HCN and ACN production.

COMMENT NUMBER: 2-D-18
DOCKET NUMBER: LD12-00194
COMMENTER: Rohm and Haas
ISSUE: D001 - Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

The Agency acknowledges and thanks this commenter for the support of deactivation as a treatment standard. The Agency believes that because of the diversity of waste streams in some subcategories of characteristic wastes and treatment technologies applicable to these wastes, a treatment standard of deactivation is best. Therefore, the Agency is promulgating a treatment standard of "Deactivation to Remove the Characteristic" for most characteristic wastes. This standard will allow generators and treaters the needed flexibility to select the technology that is best suited to remove the hazardous characteristic of the waste. A list of additional technologies that when used alone or in combination can achieve the "deactivation" treatment standards is included in 40 CFR 268 Appendix VI. See Section 4 for a response to the D003 comment.

Comment Number: 2-D-19
Docket Number: LD10-00018
Commenter: Idaho Mining Association
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

IV. TECHNICAL COMMENTS CONCERNING THE ANPRM

A. Introduction.

EPA's ANPRM states that:

> D001 wastes in the Ignitable Reactives Subcategory are primarily inorganic solids or wastes containing reactive materials. These include materials such as reactive alkali metals or metalloids (such as sodium and potassium), calcium carbide slags, and phosphorus. All of these are very reactive with water and will generate gasses that can ignite due to heat generated from the reaction with water.
>
> . . . .
>
> Ignitable Reactives are generated on a sporadic basis and generally in low volumes. They are not typically placed in surface impoundments due to the fire dangers associated with their reactivity with water.

54 Fed.Reg. 1094 (January 11, 1989) (emphasis added). As applied to elemental phosphorus, generally, and the Phosphorus Industry, specifically, all of the underlined statements are incorrect.

B. Phosphorus Is Not Reactive With Water.

Phosphorus is not reactive with water. Given enough time, elemental phosphorus will very gradually, chemically "react" with water to become phosphate. However, this chemical "reaction" involves neither ignition, nor reactivity, within the meaning of those terms as used in RCRA. In fact, the reactivity of phosphorus with water is so low that the standard industry practice concerning the handling of phosphorus-containing material is to keep it wet or store it in water because it is reactive with air. Obviously, quite apart from the Phosphorus Industry, EPA will need to further refine its thoughts concerning the appropriate management of phosphorus in the context of establishing any specific BDAT.

Comment Number: 2 – D 19. (Cont.)
Docket Number: LD10 - 00018
Commenter: Idaho Mining Assoc.
Issue: D001- Characteristic Ignitable Waste
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

C. The Phosphorus Industry Manages Large Volumes of Materials Containing Significant Quantities of Phosphorus.

EPA's comment that "Ignitable Reactives" (which the Agency states includes phosphorus) are generated on a "sporadic basis and generally in low volumes" is not correct. Although concededly, pure elemental phosphorus is probably not a waste generated in large volume, the Phosphorus Industry materials streams and related residues include significant concentrations of phosphorus and involve the management of large absolute quantities of such materials on a daily basis (see Exhibit II to Attachment II).

Comment Number: 2 – D – 19 (Cont.)
Docket Number: LD10 - 00018
Commenter: Idaho Mining Assoc.
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

EXHIBIT II*

	Number of Facilities	Total Industry Waste Generation	Average Rate of Waste Generated Per Facility	EPA's Proposed Average Rate Criterion	**Industry Phosphorus Production Average Per Plant	Average Ratio of Waste to Product	EPA's Propose Ratio
Process water contaminated with phosphorus from elemental phosphorus production facilities (phossy water)	5	1,565,000	311,000	50,000	58,000	5.4	.5
lowdown from furnace crubbers at emental hosphorus roduction ants	5	768,000	153,000	50,000	58,000	2.6	.5
urnace ff-gas olids enerally eferred to roaster sidue, aporator sidue, ecipitator urry, or eater dust)	5	537,000	107,000	50,000	58,000	1.8	.5

ll waste generation and production data is presented in metric tons per year.
roduction is based upon five-year plant averages.

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Comment Number: 2 – D 19 (Cont.)
Docket Number: LD10-00018
Commenter: IDAHO MINING ASSOC.
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

Surface Impoundments Are The Safest And Most Environmentally Acceptable Phosphorus Material Management Technology

All five U.S. phosphorus production facilities use surface impoundments to manage the plant "phossy water" materials streams. Surface impoundment of the phossy water is the safest, most environmentally acceptable and only practical means of handling these materials streams. Since phosphorus is essentially nonreactive in water and is a solid at ambient temperatures, it does not readily leak into the ground water. Keeping material that might contain high concentrations of phosphorus wet is a sound management practice. Additionally, since elemental phosphorus will react slowly with water to create phosphate (a non-hazardous and fairly innocuous material contained in common laundry detergent), or will remain as a solid, there is essentially no possibility that "reactive" phosphorus could migrate out of the impoundment in the event of a leak in a liner. Further, given the large volume of material managed by each plant, there is no practical alternative to handle this materials stream. These impoundments make it possible to recycle and reclaim the phosphorus-bearing material, as opposed to mere deactivation, which would render the phosphorus essentially unrecoverable, and thereby generating a useless waste material.

COMMENT NUMBER: 2-D-19

DOCKET NUMBER: LD10-00018

COMMENTER: Idaho Mining Association

ISSUE: D001 Characteristic Wastes

SUBISSUE: Issues Concerning Deactivation Treatment Standards

RESPONSE:

EPA agrees with the commenter that all wastes in the ignitable reactives subcategory are not extremely reactive with water and are not generated in low volumes. The Agency believes that a chemical reaction with water to phosphate is an appropriate deactivation treatment for some phosphorus ignitable reactive wastes. These wastes must be treated to remove the characteristic before discharge into the surface impoundment. Since the ignitable reactive material is mixed with water before discharge, it appears that the characteristic has been removed; on the other hand, dry phosphorus wastes exhibiting the characteristic of ignitability cannot be directly placed into the surface impoundment.

Comment Number: 2 - D - 20
Docket Number: LD10 - 00011
Commenter: ENSCO
Issue: D001- Characteristic Ignitable Wastes
Subissue: Issues concerning Deactivation Treatment Standards
Comment:

I. D001 Wastes in the Ignitable Reactives Subcategory.

Small quantities of ignitable reactives are often treated in rotary kiln incinerators to remove the characteristic of ignitable. This treatment is especially utilized to treat wastes from laboratories where the quantity of the ignitable reactive waste is small enough to allow such treatment without any damage to the incinerator and without causing any upset of control systems. This treatment should continue to be considered a beneficial and effective treatment by adding incineration as a treatment method technology.

COMMENT NUMBER: 2-D-20
DOCKET NUMBER: LD10-00011
COMMENTER: Ensco
ISSUE: Characteristic Ignitable Wastes
SUBISSUE: Issues Concerning Deactivation Treatment Standards
RESPONSE:

EPA agrees with the commenter that incineration is an appropriate technology for treatment D001 wastes in the ignitable reactive subcategory.

1

COMMENT NUMBER: 2-E-1

DOCKET NUMBER: LD12-00110

COMMENTER: ThermalKEM/CyanoKEM

ISSUE: D001 - Characteristic Ignitable Wastes

SUBISSUE: Definitions of Subcategories

COMMENT:

EPA should also clarify in the final rule how one is to determine if they are generating a D001 solid or sludge waste that is eligible for the variance. There is no clear definition of a D001 solid or sludge in SW846 or 40CFR Part 261. It is difficult to believe that 12 million gallons per year of solids and sludges are generated that meet the definition under 40CFR261.21(a)(2) of ignitable. Is the assessment of required capacity correct? Also, is the determination of liquid under 261.21(a)(1) based on the paint filter test ("free liquid" Method 9095) or the EP test (Method 1310) or based on the releasable liquid test under Method 9096? Clarification of this issue is important if the capacity variance for D001 "solids and sludges" goes final on May 8, 1990. EPA should review a Memorandum No. 29 dated 10/24/89 of David Friedman, Chief of EPA's Methods Section regarding the definition of liquid in clarifying this critical issue in the final Third Thirds rule.

COMMENT NUMBER: 2-E-1
DOCKET NUMBER: LD12-00110
COMMENTER: CMA
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Definitions of Subcategories
RESPONSE:

While the Agency has defined liquids as materials expressed from wastes in Step 2 of Method 1310 (EP), and Methods 9095 and 9096, there is not a specific definition in the reguations. Therefore, the generator of a potentially ignitable liquid waste may use any liquid determination method for which he can provide an appropriate scientific or technical justification.

COMMENT NUMBER: 2-E-2
DOCKET NUMBER: LD12-00167
COMMENTER: Westinghouse Electric Corporation
ISSUE: D001-Characteristic Ignitable Wastes
SUBISSUE:
COMMENT: Definitions of Subcategories

Oxidizers Subcategory - (54 FR 48421)

Deactivation is the proposed treatment methodology for oxidizers. However, the term "oxidizer" requires a more precise definition, along with conditions and limitations. A waste may contain a percentage of a compound that is defined as an oxidizer under the Department of Transportation (40 CFR 173.151) but may have no potential hazard since a limited amount of oxidizer is present. EPA should clarify the conditions under which a waste would fall into the oxidizer treatability group in the final rule.

COMMENT NUMBER: 2-E-2

DOCKET NUMBER: LD12-00167

COMMENTER: Westinghouse Electric Corporation

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Definitions of Subcategories

RESPONSE:

Currently, generators must assess wastes for oxidizing hazards by considering known oxidizing constituents contained within the wastes, and by the definition as outlined in 49 CFR 173.151 which states:

> "An oxidizer for the purpose of this subchapter is a substance such as chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of the organic matter."

In other words, the presence of any amount of the substances does not indicate that a material is an oxidizer, rather one or more of these substances must be present in a quantity sufficient to yield oxygen and stimulate combustion.

Comment Number: 2-E-3
Docket Number: LD12-00168
Commenter: American Petroleum Institute
Issue: D001 - Characteristic Ignitable Wastes
Subissue:
Comment: Definitions of Subcategories

III. A.4.b. - Ignitable Wastes

In addition to the overall problems described above, there are several specific flaws in EPA's proposed standards for ignitable wastes.

The four proposed subcategories or D001 wastes do not appear to cover certain solids which may demonstrate the ignitability hazardous characteristic. Moreover, the analytical methods specified for this characteristic are not appropriate for all solid or semi-solid wastes. Consequently, there is no acceptable method to determine that such a solid waste is not characteristically ignitable.

By setting mandatory treatment technologies for such wastes without an appropriate test method, the Agency would force the regulated community to treat as hazardous large quantities of waste which may not be hazardous. Furthermore, there is no assurance that the residue from the specified technology will be recognized by a landfill operator as being nonhazardous due to the lack of an appropriate test method.

COMMENT NUMBER: 2-E-3

DOCKET NUMBER: LD12-00168

COMMENTER: American Petroleum Institute

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Definitions of Subcategories

RESPONSE:

EPA agrees with the commenter that there is no EPA approved SW-846 analytical method that can be used to determine if a solid waste is characteristically ignitable (i.e., flash point less 140°F). Generation of solids wastes that should be included in the D001 ignitable liquids subcategory can result when solids settle to the bottom of a drum or tank containing ignitable liquids or when "pockets" of ignitable liquid material have been trapped in solid materials. These solid materials must be treated to remove the liquid portion of waste and the resulting liquid if it exhibits the characteristic of ignitability must be treated to achieve the appropriate treatment standard.

Comment Number: 2-E-4
Docket Number: LD12-00198.
Commenter: Department of Energy
Issue: D001: Characteristic Ignitable Wastes
Subissue:
Comment: Definitions of Subcategories

4) 54 FR 48421, Oxidizers Subcategory.

The fundamental concern that DOE has with the oxidizers treatability group is that it is very difficult to define what an oxidizer is. Oftentimes, a chemical may contain some percentage of compound that is defined as an oxidizer under the Department of Transportation (40 CFR 173.151). When does it cease to be an oxidizer? Conservatively, a waste could be defined as an oxidizer when in fact no deactivation is necessary because it does not have any potential to release unsafe quantities of heat or volatile organics. EPA should clarify the conditions for which a waste would fall into the oxidizer treatability group in the final rule.

COMMENT NUMBER: 2-E-4
DOCKET NUMBER: LD12-00198
COMMENTER: Department of Energy
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Definitions of Subcategories
RESPONSE:

Currently, generators must assess wastes for oxidizing hazards by considering known oxidizing constituents contained within the wastes, and by the definition as outlined in 49 CFR 173.151 which states:

> "An oxidizer for the purpose of this subchapter is a substance such as chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of the organic matter."

In other words, the presence of any amount of the substances does not indicate that a material is an oxidizer, rather one or more of these substances must be present in a quantity sufficient to yield oxygen and stimulate combustion.

Comment Number: 2-E-5
Docket Number: LD100048
Commenter: DOW CHEMICAL CO.
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Definitions of Subcategories
Comment:

XVIII. IGNITABLE REACTIVES SUBCATEGORY CHARACTERISTIC SHOULD BE CLARIFIED.

This proposal discusses the inclusion of magnesium in the D001 waste category as an ignitable reactive. It is unclear what type of waste containing magnesium was being discussed. Magnesium containing wastes generated from the primary production of magnesium is currently excluded from regulation under Subtitle C by the Bevill Amendment. While the future scope of the Bevill Amendment is under review, these magnesium containing wastes are not now subject to the LDR program.

Further, it is not clear in what physical form the magnesium in the waste discussed in the proposal so the magnesium containing waste would meet the characteristic: "[W]hen ignited, burns vigorously and persistently." If the magnesium waste discussed in this proposal was powdered or metallic magnesium which is sent for land disposal, then the designation of D001 (Ignitable Reactive) might be applicable. The Agency should clarify the extent of its proposal. "No land disposal based on deactivation" would be a serious problem for wastes generated in the primary production of magnesium. Our concern with these wastes is based on the inherient lack of clarity of this characteristic.

COMMENT NUMBER: 2-E-5

DOCKET NUMBER: LD12-0048

COMMENTER: The Dow Chemical Company

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Definitions of Subcategories

RESPONSE:

The D001 ignitable reactive material that generally exhibits the characteristic of ignitability is a finely divided powdered substance that can vigorously react with the oxygen in the air when ignited and when ignited burns vigorously and persistently.

Comment Number: 2-E-6
Docket Number: LD10-00019
Commenter: Monsanto
Issue: D001- Characteristic Ignitable Wastes
Subissue:
Comment: Definitions of Subcategories

H. Comments on EPA's Approach to Remaining Characteristic Wastes

1. D001 Ignitable Wastes

At 54 FR 1094/2, EPA improperly classifies magnesium and aluminum as "Ignitable Reactive" compounds that "can react vigorously with oxygen in the air". EPA should clarify that they mean to include only a finely divided powder form of the metal in this regard.

EPA also improperly categorizes phosphorus as an ignitable hazardous waste because it is said to be "very reactive with water and will generate gases that can ignite due to heat generated from the reaction with water". Phosphorus does not react with water except very slowly. Indeed, it is stored and shipped under water to prevent contact of the elemental phosphorus with air.

Regarding the subject of elemental phosphorus, Monsanto Company is a producer of phosphorus and is concerned that the Agency must develop a proper understanding of the phosphorus manufacturing industry as it considers development of treatment standards for characteristic wastes. While at the present time essentially all of the materials streams relating to phosphorus processing are excluded from regulation as hazardous wastes under the "Bevill Amendment", EPA studies relative to this exemption are underway. Accordingly, Monsanto is associated with the Idaho Mining Association, which has submitted comments "On Behalf of the United States Elemental Phosphorus Producers" on this rulemaking. Monsanto has taken an active role in the formation of those comments, which are submitted separately to the Agency. Those comments are incorporated herein by reference, in their entirety, as the comments also of Monsanto Company.

COMMENT NUMBER: 2-E-6

DOCKET NUMBER: LD10-00019

COMMENTER: Monsanto

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Definitions of Subcategories

RESPONSE:

The Agency agrees with the commenter that magnesium and aluminum D001 ignitable reactive wastes are typically the finely divided powder forms of the metals. EPA also agrees that not all wastes included in the D001 ignitable reactive subcategory are reactive with water (e.g., elemental phosphorus wastes).

Comment Number: 2-F-1
Docket Number: LD12-00129
Commenter: Olin Chemicals
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

Need to Treat Rather Than Dilute Ignitable Wastes (III.A.4.b.(5))

USEPA states that "Ignitability, however reflects presence of volatile organic compounds (VOC) . . ." As stated above, the oxidizer subcategory does not necessarily have to be due to VOC's. As Olin has previously stated, the best demonstrated treatment method for certain oxidizers, such as swimming pool chemicals, nitric acid and hydrogen peroxide is dissolution in large quantities of water.

It is unfair and unreasonable that the Agency require incineration for inorganic oxidizers and should allow dilution as BDAT for the treatment of the Ignitable waste oxidizer subcategory.

COMMENT NUMBER: 2-F-1
DOCKET NUMBER: LD12-00129
COMMENTER: Olin Chemicals
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Dilution
RESPONSE:

The Agency agrees with the commenter that mixing oxidizer wastes with water prior to chemical treatment is not a form of impermissible dilution.

Comment Number: 2-F-2
Docket Number: LD12-00168
Commenter: American Petroleum Institute
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

III. A.4.b. (5) - Treatment Rather Than Dilution of Ignitable Wastes

EPA proposes to prohibit dilution as a permissible treatment method for ignitable characteristic wastes, even though such treatment is a long-accepted method of treating some such wastes to remove the characteristic and render the waste non-hazardous. EPA's primary explanation for this proposal is that ignitable wastes generally contain high levels of volatile organic compounds (VOC) which could be emitted into the air, and thus contribute to ozone formation, to a greater degree if the wastes are diluted than if they are treated by a method that destroys VOC's. EPA's explanation is flawed for several reasons. First, despite EPA's generalization, it does not follow that dilution of an ignitable waste always leads to increased emissions. Some ignitable wastes contain much smaller concentrations of VOC's than others. (For example, paint thinners may be very high in VOC content while heavy napthas may have much lower percentages of VOC.) Moreover, in some cases mixing high-VOC materials with heavy oily materials or soil may actually result in lower VOC emissions (due to co-solubility or adsorption of hydrocarbons) than would result if there was no dilution. In addition, dilution which occurs in an enclosed system may result in little, if any, atmospheric release of VOC's.

Comment Number: 2-F-2 (Continued)
Docker Number: LD12-00168
Commenter: API
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

Second, although EPA may have a general concern with ozone formation, that concern does not justify requiring treatment of ignitable wastes by imposing treatment standards under RCRA section 3004(m) that preclude dilution as a means of rendering the waste non-hazardous. At best such an approach would promote ozone reduction indirectly and inefficiently. Instead, if EPA can demonstrate valid ozone-related concerns from treatment of ignitable wastes, it should address that problem directly as part of its Ozone Control Policy under the Clean Air Act. See 52 Fed. Reg. 45044 (November 24, 1987). Alternatively, it could impose direct emission controls on hazardous waste TSD facilities under RCRA section 3004(n).[20]

The more general aspects of EPA's suggested limits on dilution are addressed in parts III. G. and H of these comments.

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[20] EPA's other explanations for this proposed limitation are also merely generalized assertions for which EPA offers no support and which may or may not have any merit. For example, EPA claims that VOC emissions from dilution may pose a reignition hazard. 54 Fed. Reg. 48422. That claim appears to be largely speculative and provides no concrete support for a dilution prohibition.

COMMENT NUMBER: 2-F-2
DOCKET NUMBER: LD12-00168
COMMENTER: American Petroleum Institute
ISSUE: D001 - Characteristic Ignitable Liquid Wastes
SUBISSUE: Dilution
RESPONSE:

The Agency is still concerned about the air emissions associated with treatment of wastes containing volatile organic constituents, but believes that these concerns are best controlled by establishing air emission limitations in the future.

Except for high TOC wastes EPA is indicating that the ignitable property can be removed by any means that does not constitute land disposal.

Comment Number: 2-F-3
Docket Number: L012-00235
Commenter: EXPLOSIVE TECHNOLOGIES INT'L.
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

Impermissible Dilution of D001 Oxidizers

On Page 48422, the Agency states that prohibition on dilution of "Ignitable Wastes" to remove the hazardous characteristic is environmentally justified because VOC emissions will be reduced, the wastes' energy value will be best utilized and there will be no incentive for miscoding prohibited solvent waste as D001. Due to the lack of any comments to the contrary, this prohibition would also apply to D001 Oxidizers since they fall within the category of "Ignitable Wastes". However, the justifications given by the Agency for this prohibition are based upon properties of D001 Ignitable Liquids and are not applicable to the properties of D001 Oxidizers.

Since addition of water may be the most desirable alternative to eliminate the "imminent hazard" characteristic of this type waste (particularly during emergency conditions) and the justifications presented for the prohibition do not apply to D001 Oxidizers, we recommend this prohibition not be applied to D001 Oxidizers.

COMMENT NUMBER: 2-F-3
DOCKET NUMBER: LD12-00235
COMMENTER: Explosive Technologies International
ISSUE: D001 Characteristic Ignitable Wastes
SUBISSUE: Dilution
RESPONSE:

The Agency agrees with the commenter that mixing oxidizer wastes with water (for safety reasons and prior to chemical treatment) is not an impermissible form of dilution.

Comment Number: 2-F-4
Docket Number: LD-12-00272.
Commenter: General Dynamics
Issue: D001- Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

THE FOLLOWING COMMENTS ARE OFFERED IN SPECIFIC RESPONSE TO DILUTION AS TREATMENT FOR IGNITABLE WASTES

On p. 48422, the EPA states that dilution is not considered a legitimate method for treating ignitable wastes. Comments were requested to identify circumstances when dilution may occur as a legitimate adjunct to treatment.

We would like to point out that dilution of a hazardous waste is sometimes a necessary step in the proper treatment of hazardous waste. A specific example is the treatment of waste hydrazine fuel used in the emergency power units on military aircraft.

The hydrazine fuel in question is a 70 to 30 mixture of hydrazine to water. The resultant mixture is highly flammable, corrosive, reactive, and toxic, making it difficult to treat. The usual treatment method is to react the waste hydrazine with chlorine to form water and common table salt. However, due to the extreme hazard characteristics of hydrazine, the treatment can be done with a much higher degree of safety if the solution is first diluted with water prior to chemical treatment.

Dilution offers several safety advantages in this process:

1) Decreases the volatility of the material thereby reducing worker exposure to toxic vapors.
2) Reducing volatility also reduces the corresponding explosion hazards caused by the vapors.
3) Finally, dilution eliminates the ignitability characteristic of the hydrazine.

We support the EPA's position that dilution of a waste to reduce its concentration below some acceptable limit is wrong. However, we do feel that dilution does have a legitimate place in waste treatment when used in conjunction with some other treatment, where the dilution increases the safety or practicality of that process.

COMMENT NUMBER: 2-F-4

DOCKET NUMBER: LD12-00272

COMMENTER: General Dynamics

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Dilution

RESPONSE:

EPA agrees with the commenter that mixing with water or organic liquids (i.e., kerosene) may be necessary in some cases to reduce potential for explosion and thus, ensure safe handling and/or transportation for subsequent incineration or chemical treatment of explosive wastes. EPA is not restricting the use of this practice for wastes that are, characteristic for both reactivity and ignitability.

Comment Number: 2-F-5
Docket Number: LD-12-L0034
Commenter: HWTC
Issue: D001 - Characteristic Ignitable Wastes
Subissue: Dilution
Comment:

COMMENTS REGARDING IMPACT OF PROPOSED POLICY ON IMPERMISSIBLE DILUTION

DuPont raised a number of issues in their comments on the dilution policy (see page 4 of LD00189) which deserve response. DuPont is concerned that the exemption for ignitable liquids containing < 24% alcohol under § 261.21(a)(1) and laboratory chemicals in NPDES discharges under § 261.3(a) may be superseded by Part 268 standards. Of course, this can not be the case because Part 268 only applies to hazardous wastes as defined under Part 261 (see § 268.1(b)). DuPont further argues on page 5 that EPA should not discourage biological treatment of waste by finding that dilution of hazardous wastes in the pipes leading to their non-MTR surface impounds has occurred. EPA is urged to allow the aggregation and collection of these waste streams in facilities governed by Clean Water Act discharge permits. Further regulation is presented as being unnecessary.

HWTC concurs with the arguments of DuPont as long as the materials being aggregated are non-hazardous wastes prior to their aggregation as in the examples of laboratory chemicals and dilute alcohols. However, HWTC does not share this conviction if the materials being aggregated are actually hazardous wastes at their point of generation and the dilution does not chemically change the constituent, as it would for the pH of corrosives. DuPont presents Table 1 on page 3 which lists methyl ethyl ketone (MEK) as a waste constituent which is supposedly roped into D001 by the "new" concept of impermissible dilution.

MEK is a toxic constituent as indicated by its listing as U159. DuPont's non-MTR units are not regulated for releases to the groundwater under the Clean Water Act. HWTC believes that the releases of toxic constituents from surface impoundments to the groundwater should be protected by regulation and are best addressed under RCRA, either through MTR or the waiver under § 265.221(c). To the extent that the clarification of impermissible dilution under the Third Thirds rule brings the control of subsurface release under RCRA, HWTC fully supports the proposed rule.

COMMENT NUMBER: 2-F-5

DOCKET NUMBER: LD12-L0034

COMMENTER: HWTC

ISSUE: D001 Characteristic Ignitable Wastes

SUBISSUE: Dilution

RESPONSE:

EPA agrees with the commenter that ignitable liquid wastewaters and low TOC nonwastewaters may need to be mixed with other wastewaters to achieve an organic concentration desirable for proper operation of a treatment system (e.g., wastewaters destined for biological treatment are often commingled to achieve an organic concentration that is optimal for the microorganisms).